

NBER WORKING PAPER SERIES

DETERMINANTS OF PRIVATIZATION
PRICES

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Working Paper 5494

NATIONAL BUREAU OF ECONOMIC RESEARCH
1050 Massachusetts Avenue
Cambridge, MA 02138
March 1996

My special thanks to Andrei Shleifer for his advice throughout the project. I thank Olivier Blanchard, Richard Caves, Gary Chamberlain, Edward Glaeser, Igal Hendel, Michael Kremer, Rafael La Porta, Enrico Spolaore, Aaron Tornell, and Guillermo Zamarripa for their comments. I also thank seminar participants at Harvard, the University of Chicago, Columbia, New York University, Stanford, U.C.L.A., U.C. San Diego, and the NBER for their comments and suggestions, and the Government of Mexico for allowing me access to the privatization files. This paper is part of NBER's research programs in Corporate Finance and Public Economics. Any opinions expressed are those of the author and not those of the National Bureau of Economic Research.

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ABSTRACT

Generating government revenue is a common objective in privatization. This paper asks: *what determines privatization prices?* Pursuing this query helps resolve the current controversies about the bearing of speed and the role for government actions prior to privatization. The data, gathered from primary sources, encompass 361 privatized Mexican companies in 49 four-digit industry codes. The determinants of auction privatization prices are divided into three groups: (1) company performance and industry parameters; (2) the auction process and its requirements; and (3) the prior restructuring actions taken by the government. Controlling for company and industry effects reveals the significant impact of the costs and characteristics of the labor force. Minority control packages carry large discounts. Auction requirements that allow foreign investors result in higher sale premia, while restrictions constraining participation or payment forms reduce net prices. The speed of privatization substantially influences net prices: the longer it takes to put the company on the block, the more severe the deterioration in performance, and the lower the premium obtained. Pre-sale reductions in labor force, and particularly the firing of CEOs, lead to significantly higher premiums. Debt absorption, investment, and performance improvement programs do not increase the net price, while de-investment measures prove more beneficial. Overall, the results show increased premia for government actions that stimulate bidder participation and expedite the privatization process.

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I. INTRODUCTION

An auction of public enterprises is a standard mechanism for achieving a fundamental objective of privatization: the generation of government revenue (see Bolton and Roland [1992] and Maskin [1992]). This paper examines *what determines auction prices in privatization*. Three types of determinants are considered: (1) company and industry characteristics; (2) the auction process and its requirements; and (3) prior restructuring policies of the government. The analysis of price determinants resolves some of the current controversies about the role of speed of sale and of government actions prior to privatization (see Laffont [1994], Sachs [1992], Shleifer & Vishny [1994], and Tirole [1991]). This study provides answers to several questions concerning privatization: How is privatization affected by other residual claimants of the firm? Do the timing and specifics of the process matter? Should the government attempt to manipulate the auction? What types of prior restructuring policies are worth implementing? Is speed a key ingredient precluding further government intervention during the sale? To address these questions I have created an exhaustive database from primary sources of all companies privatized in Mexico during the period between 1983 and 1992.

The paper is divided into seven sections. Following the introduction, section II outlines the framework of the analysis: the government, subject to political and social constraints, acts with the hope of increasing the expected value of a public enterprise. These policy actions encompass a wide array of restructuring measures and auction requirements. Section II also frames some of the key questions surrounding privatization in terms of the different groups of determinants of prices. Finally, this part describes the econometric methodology used in the rest of the study.

Section III briefly describes the sample and construction of the database. This study covers the Mexican privatization program, which involves 361 companies in 49 four-digit industry codes. The data encompass company characteristics, bids and bidders in the auction, and all government actions before and resulting from each privatization. These variables are used to determine the net price obtained by the government and an approximation of Tobin's Q, here termed *Privatization Q (PQ)*.

The fourth section presents a cross-sectional analysis of the data and interprets the first category of price determinants: firm and industry characteristics. The results reveal the positive impact on net prices of the firm's past performance in terms of net and operating income, capacity usage, and market share. Privatization involves the sale of fixed assets along with a labor contract. A labor union's power, measured by the number of strikes and the cost of contingent labor liabilities, has a significant negative impact on net prices. Industries in which State-owned Enterprises (SOEs) produce a large share of total output carry a premium, reflecting the continuation of favorable regulation and entry barriers, as well as possible previous underexploitation of market power. Finally, in line with findings in related work on private companies (Zingales [1993]), control leads to large premia for majority blocks.

Section V examines the variables related to the process of privatization and auction characteristics. Net

prices rose in the second phase of the program (1988-1992) when privatization became a central item on the government's agenda and the economy underwent a stabilization program. The data show that companies' profitability and market penetration significantly deteriorate as the sale day approaches. Longer *internal times* of sale, defined as the period between the first rumor of privatization and its public announcement, lead to larger deterioration in performance, resulting in lower premia. The number of bidders involved in the auction positively influences the price, indicating the relevance of wide participation and the need to eliminate requirements that decrease bidder involvement. Several of these requirements are shown to affect PQ negatively.

Section VI examines the role of government actions prior to privatization by analyzing the third set of price determinants: restructuring actions before the sale. Prior policies depend on some of the same variables that comprise the bidders' price function. Given the endogeneity of prior actions, a two-stage process is required to evaluate their final impact on price. In the first stage, discrete or limited dependent variables methods are used to determine the probability that a restructuring measure occurs, revealing the main factors that influence the government's decisions. In the second stage, the predictors of restructuring actions are used as generated instruments to account for the effect of such policies on PQ.

I analyze six areas of company restructuring prior to privatization: management, labor, debt, efficiency programs, investment, and de-investment. An evaluation of their final impact on net prices provides guidelines for dos and don'ts in SOE restructuring. For instance, the results suggest that it is worthwhile to replace the CEO with a "privatizer" whose task is to clean up the company, to reduce the waste of resources, and to get the firm on the block as quickly as possible. Labor downsizing before selling has a positive marginal effect on PQ, while debt absorption has no impact. Investing or embarking on efficiency programs before the sale actually decreases PQ; the government does not get its money's worth and the performance of the company remains the same. In contrast, cutting the flow of resources and postponing large investment programs, or de-investing, fares better in terms of premiums.

Section VII summarizes the findings. These results shed light on the privatization process and provide empirical evaluation of some theories about privatization.

II. PRIVATIZATION PRICES AND THEIR DETERMINANTS

II.A. Methodology and Privatization Q

Although various national privatization programs outline a multiplicity of goals, a closer look reveals that most governments pursue two basic objectives: (1) efficiency enhancement, in terms of depolitization of state-owned enterprises (SOEs) and improvement of corporate governance (see Shleifer and Vishny [1994]); and (2) revenue generation, either to get out of fiscal crises or to achieve redistributive purposes. An evaluation of privatization practice also suggests that, subject to certain political and social constraints,

generating government revenue is a fundamental objective. In Mexico, for example, price was the key factor in selecting the winner in over 96% of all privatized SOEs.

When all relevant costs of privatization are considered, the net transaction price is often very different from the announced price in the sale contract. A failure to account for these costs in the price measure could lead to a significant bias. Adjusting the prices reported in the official statistics requires an analysis of the sale contract and all restructuring costs incurred prior to and connected to the sale. A measure of the net price obtained by the government for each company privatized, i , is created as follows:

$$GNPP_i = B_i - P_i * R_i - GC_i - Adj_i \quad (1)$$

$GNPP_i$, or Government Net Privatization Price for company i , is constructed by calculating the present value of the nominal sale price as registered in the sale contract (B_i) and making the following adjustments:

- (a) subtracting the cost (P_i) of the restructuring measures (R_i) undertaken by the government before the sale;
- (b) subtracting of the costs of the "Government Commitments" and the "Special Clauses" promised by the government at the time of the sale (GC_i); and
- (c) adding or subtracting of the adjustments made to the sale contract (Adj_i), such as reimbursements on both sides when the financial statements differ from the ones given to the bidders before the sale.¹

Based on $GNPP_i$, I calculate an approximation of average Tobin's Q as follows:

$$PQ_i = \frac{\frac{GNPP_i}{sh_i} + TD_{i,t_0}}{TA_{i,t_0}} \quad (2)$$

where PQ_i is defined as Privatization Q for company i . PQ considers $GNPP_i$ as the proxy for market value of stock, adjusts it by the percentage of company shares sold (sh_i), and controls for total liabilities (TD_{i,t_0}) and total assets (TA_{i,t_0}) of the firm right before privatization. This allows us to calculate a price measure similar to Tobin's Q despite the limited data available for SOEs.

¹ Several other variations of $GNPP$ were also calculated. First, a more comprehensive $GNPP$ was created including parameters such as investment commitments made by the bidder and any benefits obtained for the workers in terms of shares or commitments of the bidder not to incur labor cuts. Only 12 cases had formal investment commitments of a specific amount in the sale contract. In another 3 cases, a minority percentage of shares, varying from 1 to 10%, was given to the labor union. The correlation between $GNPP$ and this new measure is 0.9852. A third variation of $GNPP$ subtracts the implied loss to the government when winners default on their payments or when contract renegotiations take place. The paper does not use this approximation in the analysis since this adjustment is an ex-post effect for price determination.

Like other measures of Tobin's Q, PQ is not free from biases. Linderberg and Ross [1981] point out that firms with valuable intangible assets in addition to physical capital tend to have higher Tobin's Qs. An upward bias may also exist since many SOEs experience financial or economic difficulties, so that the market value of debt could be below book value. Finally, the ideal measure for the denominator of PQ would be the replacement cost of the firm's plant and inventories but this number is available only for 58% of the sample, most of which are privatized in the final years of the program. The econometric analysis of this paper was also performed for this reduced set of observations using the value of the replacement cost as the denominator. Since the results do not significantly change, and the correlation of PQ with su : a measure is 0.837, I kept total assets as the denominator of PQ.

The estimation of the determinants of privatization prices in the following sections considers PQ as the dependent variable of what I call the *PQ equation*:

$$PQ_i = pq (X_i, A_i, R_i) \quad (3)$$

where PQ_i for company i is a function of company characteristics (X_i), including financial and performance data, information about the other residual claimants of the company (labor, management, minority shareholders, etc.), and industry, trade and market characteristics. Bids, and therefore PQs, are also affected by the auction process itself (A_i), including requirements imposed in the auction, the number of bidders and rounds, etc. Finally, in determining their bid, potential buyers also take into account the restructuring measures implemented by the government on company i (R_i). The PQ equation allows us to break down the determinants of auction prices in privatization and therefore to test some of the main hypotheses in the privatization literature.

II.B. The Determinants of Privatization Prices

The above framework allows us to analyze some of the main points of the privatization debate in light of the variables which affect privatization prices. This section summarizes the main arguments shown in Table I, which classifies the empirical predictions about the effects of different determinants of PQ implied by the existing theories and models of privatization.

Company Characteristics

A public company, like any private firm, is characterized by a set of contracts with its stakeholders, including workers, managers and shareholders (Fama and Jensen [1983]). Labor plays a dominant role in public enterprises, making union dealings and collective contracts a significant determinant of privatization prices (López-de-Silanes et al.[1995]). SOEs often have excess workers, partly because public sector unions place greater weight on employment increases than do unions in the private sector (see Freeman and Ichniowski [1988]) and because they simply are more effective in raising employment

TABLE I

EMPIRICAL PREDICTIONS OF THE MAIN THEORIES ABOUT
THE DETERMINANTS OF PRIVATIZATION PRICES

This table classifies the empirical predictions implied by models of the effects of different determinants on privatization net prices. The measure of net price is "Privatization Q," the value of the Government's Net Privatization Price (GNPP) adjusted by the percentage of SOE shares sold plus Total Liabilities of the SOE at the time of privatization, divided by Total Assets of the SOE at the time of privatization.

Independent Variables	Model or Theoretical Idea	Empirical Predictions of the Effect on PQ
<i>I. Company and Industry Characteristics</i>		
Strong and Active Unions	<i>Shleifer & Vishny (1994), López-de-Silanes et al. (1995)</i> : Public unions try to block privatization and are costly to buyers.	Negative Effect
Government participation in industry's output	<i>Laffont (1994), Kikeri et al. (1992)</i> : Higher market participation entails more market power, unexploited market possibilities, or may be associated with more favorable regulation.	Positive Effect
Control vs. Revenue Privatizations	<i>Grossman & Hart (1980), Shleifer & Vishny (1994)</i> : The "control" view argues that residual rights of control are the critical determinant of resource allocation. <i>Vickers & Yarrow (1988), Laffont & Tirole (1993)</i> : The "incentive" view argues privatization gains come from increased managerial discipline; therefore control should not be critical in determining prices.	Higher PQ for Control privatizations No significant difference between control and revenue privatizations.
<i>II. The Auction Process and its Characteristics</i>		
Learning Effect or Credibility Effect	<i>Galal et al. (1994), Kikeri et al. (1992)</i> : Government learns how to sell as time and experience goes by. Public becomes familiar with the process as results are known.	Positive Effect
Macroeconomic Stability	<i>Vuytsteke (1988), Kikeri et al. (1994)</i> : Improves firm prospects. <i>Shleifer & Vishny (1994)</i> : Harder budget constraints.	Positive Effect
Length of each process, or lack of speed.	<i>Caves (1992), Bolton & Roland (1992)</i> : Once privatization is announced, improved stakeholders' incentives boost company performance. Management cares about reputation. <i>Altman (1984), Wruck (1990)</i> : Privatization news triggers performance deterioration similar to that of firms in financial distress.	Positive or No Effect
Auction Competition	<i>Milgrom (1987)</i> : Increases likelihood that some bidder perceives the good's value, and reduces danger of collusion.	Positive Effect
Auction Restrictions on: 1) Foreign Investment	<i>Office of Privatization of Venezuela (1990), and other agencies</i> : Foreign buyers tend to underbid because they do not value all the assets' potential and preclude potential domestic buyers.	Positive Effect
2) Pre-qualifications: Bidder-type, ownership period, investment plan.	<i>Mexican Banking Privatization Committee (1991), and other agencies</i> : Pre-qualification of bidders increases the quality of the auction, and gives certainty to the whole privatization program.	Positive Effect
3) Form of Payment	<i>Aghion, Hart & Moore (1992), Ludders (1992)</i> : Restrictions reduce competition and may prevent a bidder from acquiring the SOE at its maximized value.	Negative Effect
<i>III. Prior Restructuring Policies</i>		
Management Changes	<i>Bolton & Roland (1992)</i> : Loss of experienced management. Old management tries to run the firm efficiently because they need a reputation to help them find a job. <i>Barberis et al. (1993)</i> : Old management team would have the wrong human capital to face competition and market conditions.	Negative Effect Positive Effect
Firing Workers and/or Contract Renegotiation	<i>Yarrow (1986), Kreps and Wilson (1982)</i> : The government has more resources to design social safety net measures. The government is playing a repeated game with imperfect information in which it cares to develop a reputation for toughness. <i>Freeman (1986), López-de-Silanes et al. (1993)</i> : Public unions can influence the future of politicians who care about votes, therefore the government has less bargaining power.	Positive Effect Ambiguous Effect
Debt Absorption	<i>Newbery (1991), Bolton & Roland (1992)</i> : SOEs could be financially distressed from debt burden but still economically viable. Debt write-offs with auctions amount to a swap of securities and allows new owner to optimally redesign the capital structure.	Positive Effect
Efficiency Improvement Programs	<i>Kikeri et al. (1994)</i> : Asymmetric information makes bidders underbid when easy-to-solve bottleneck problems are present. <i>Boycko et al. (1993)</i> : Managers have incentives to get resources for the last time and waste them. Managerial theft could also happen.	Positive Effect Negative Effect
Investment Measures	<i>Tirole (1991), Kikeri et al. (1994)</i> : "...long-planned and careful expansions, especially for well-run SOEs..." should take place. The investment associated with transforming or large firms into viable units to improve matching opportunities with bidders. <i>Shleifer & Vishny (1994)</i> : The investment might not fit the winner's plan, or the government might do the wrong investment based on political concerns.	Positive Effect Negative Effect
De-investment Measures	Cutting the flow of resources could damage the viability of the company. Managers are wasting resources.	Negative Effect Positive Effect

levels. Public union contracts, typically generous by industry standards (Freeman [1986]), exacerbate the role of labor conditions in privatization: there are cases in our sample not only where wages are high, but where fringe benefits triple the total wage bill. Such high wage levels may result from managers catering to politicians (Shleifer & Vishny [1994]).

Other stakeholders of SOEs sometimes include private shareholders. Based on the concepts introduced in Grossman and Hart [1986], privatization schemes may be classified into *control* privatizations, giving control rights as well as cash-flow rights, and *revenue* privatizations, giving some cash-flow rights but no control. In the "control" view of privatization, shared by Boycko et al. [1996], residual rights of control are the critical determinant of resource allocation, implying higher PQs for control privatizations. On the other hand, in models based on the "incentive" view (Vickers and Yarrow [1988]), control should not be critical in determining prices. According to this view, privatization gains come from increased managerial discipline, so that there should be little difference between control and revenue privatizations. A comparative analysis of the different forms of transfer and an estimate of their relative prices will contribute to this discussion.

The Auction Process and its Requirements

Prices in privatization can also result from elements of the privatization process itself, such as the auction mechanism, its implementation and timing, and the order of the companies auctioned. Part of the literature has emphasized the potential role of a "learning" effect on the part of the authority. If learning is important, governments may start by privatizing companies in competitive sectors, where there is less room for errors, and wind up with firm in oligopolistic or non-tradeable industries (Galal et al. [1994]). Other authors, such as Kikeri et al. [1992], suggest that as privatization and its results become better known by the public, "credibility" increases, translating into higher premiums. Similarly, as suggested by Vuylsteke [1988], macroeconomic stability may affect prices since the firms' prospects change with such conditions.

Speed or swiftness may also influence sale prices. The announcement, even the rumor, of future privatization of a company may trigger a change in stakeholders' behavior. Caves [1992] finds that some to-be-privatized British companies improved their performance before privatization. However, one could argue that privatization rumors may lead to lower productivity, lower performance, wage increases, costly liquidations, or the outright theft of assets, analogous to the situation of a firm in financial distress. Empirical work on the causes of the loss in value of firms in financial distress (Altman [1984] and Wruck [1990]) includes as explanations: (a) managerial distraction, incompetence, or negligence; (b) foregone investment opportunities; (c) a drop in demand resulting from aggressive competitors or loss of consumer confidence; and (d) reluctance of suppliers to extend credit or provide inputs. An appropriate measure of the length of the process will help discern the benefits of speed in privatization.

The number of bidders and auction rounds are also relevant determinants of auction prices (Milgrom [1987]). The more bidders, the higher the price will be as a result of more competition and reduced

danger of collusion. Renegotiation possibilities or several rounds of auction when the bids do not cover the minimum price expected by the seller have an impact on the optimal strategies followed by the bidders. The few precious studies cover the auctioning of oil rights, tax-exempt bonds, and government contracts (see Gaver and Zimmermann [1977], Brannman et al. [1984], and Porter [1986]). Privatization auctions offer the opportunity to look at the effect on prices of bidder participation in a wide range of industries and among a very diverse group of bidders.

Political concerns may prevent foreign participation in privatization thus favoring domestic groups. Opening the process to foreign bidders should have an effect on prices through increased competition and a reduction in the scope for collusion, particularly in oligopolistic industries in developing countries (Laffont [1994]). Other auction requirements, such as bidder pre-qualifications and forms of payment, also can have an impact on PQ. These restriction will be empirically evaluated in the course of this paper.

Prior Restructuring Policies

Some of the most interesting questions about privatization are: What actions can the government take prior to the sale to raise the price? Or, alternatively, should the government sell as fast as it can without attempting to restructure the SOE? Restructuring before privatization can take place at the company, industry, or country levels, requiring the intervention and coordination of other authorities beyond those in the office of privatization. Specific areas of prior restructuring include²: (1) change in management and/or board of directors; (2) labor cutbacks and worker contract renegotiations; (3) absorption of either outsiders' debt, cross-liabilities among SOEs, or past-due fiscal debt; (4) aid programs aimed at improving the firm's performance; (5) investment measures in the form of rehabilitation plans, agreements on financial restructuring tied to operation improvements, or a temporary reopening of the plants; (6) de-investment, or cutting the flow of resources; (7) legal restructuring, including the solution of legal disputes or the creation of patents and/or operation permits; (8) changes in domestic regulation, trade barriers, or entry and exit rules; and (9) asset restructuring in terms of spin-offs, break-ups, or even packaging of companies for the sale.

International agencies, valuers, bidders, and government officials around the world advocate the use of some of these measures in order to raise sale prices. For example, Kikeri et al. [1992] suggests using various restructuring policies according to size and industry structure. Tirole's [1991] discussion of monopoly break-ups hints at investment and rehabilitation programs linked to competition-oriented restructuring. Although these and others have suggested the use of specific procedures under certain contingencies (see Frydman and Rapaczynski [1991a], and Newbery [1991]), there is no systematic research on the subject. This paper assesses the final impact on PQ of prior restructuring by focusing on the first six groups of measures: management, labor, debt, efficiency-improvement programs,

² For a more detailed description of these policies see Appendix C.

investment programs, and de-investment measures.

Management shake-ups before privatization may be the cause of lower premiums if the loss of experienced management results in declining performance and diminished market penetration (Bolton and Roland [1992]). On the other hand, getting rid of the old team may actually improve results or reduce the financial squandering often associated with public enterprises. Additionally, the old managers may be flawed because they were good at dealing with politicians and not at facing competition and market conditions (see Barberis et al. [1996]).

A fundamental difference between public and private sector collective bargaining lies in the fact that unions can influence the future of politicians through electoral votes (Freeman [1986]). An argument in favor of government intervention in labor restructuring as a way of boosting privatization prices depends on the fact that governments also have more mechanisms than the private sector to assist workers displaced by structural changes: including retraining programs, job search assistance, and severance payments (Yarrow [1986]).

If the government considers absorbing debt, it should do so with a higher probability when the company faces large financial costs or is on the brink of bankruptcy. The common argument for such a policy claims that absorption is needed to ensure the company's viability. One could differentiate between firms in economic distress that have only negative NPV projects, and those SOEs that, although financially distressed from the burden of debt, still have positive NPV projects. The liquidation of the latter firms is inefficient (Newberry [1991]). Alternatively, bidders may not benefit from debt absorption if borrowing conditions are better once they are in possession of the asset.

A fourth group of restructuring policies includes programs aimed at improving the performance of the SOE before privatization. Upgrading efficiency may solve the main problems of the SOE, improve performance, and result in a higher privatization price, particularly if there exist information asymmetries between the government and the bidders.

The implementation of investment programs in SOEs is sometimes a response to political constraints imposed by pressures created by the possibility of shutdowns creating unemployment, or by the need to support sectors that supply basic goods or services. Additionally, according to Tirole [1991], substantial amounts of investments are required to transform monopolistic companies and break them into independent units before privatization. The argument against investment in SOEs before the sale holds that it is unlikely that the government will invest more wisely just before privatization, or that the buyer might achieve the same result at the same cost, but more in accordance with her preferences. This argument implies that de-investing, or cutting the flow of resources and canceling investment programs, may produce either a zero or a positive result in terms of PQs generated.

II.C. Estimation Procedure of the Effects of Prior Restructuring Policies on PQ

The government may attempt to raise privatization prices by trying to restructure the SOE before the sale. Its strategy may be endogenous, reflecting the company's and the industry's traits. To take account of this endogeneity, this paper uses a two-stage process to evaluate the impact of prior restructuring on PQ. The first stage estimates probability of a restructuring measure (R_i), while the second stage estimates its impact on PQ. In the first stage, officials settle on the policies some of which take the form of a binary choice, for example whether to fire the CEO or to renegotiate the collective union contract. Other actions entail choice of levels, for example the amount of company debt to absorb. For the binary case, one can think of an unobserved linear "latent variable," r_{ik}^* , for company i as:

$$r_{ik}^* = z_i \theta_k + \mu_{ik} \quad (4)$$

which depends on a vector z_i of observable company and industry characteristics and on an unobservable (μ_{ik}). In this framework, r_{ik}^* represents the government's perceived benefit from engaging in action k and determines the values that the observed dependent variable can take:

$$r_{ik} = \begin{cases} 0 & \text{if } z_i \theta_k + \mu_{ik} < 0 \\ 1 & \text{if } z_i \theta_k + \mu_{ik} \geq 0 \end{cases} \quad (5)$$

In this case, the estimation procedure uses a probit model where the probability of taking an action k on company i is the usual $P(r_{ik}=1) = P(z_i \theta_k \geq \mu_{ik}) = \Phi(z_i \theta_k)$, with $\Phi(\cdot)$ as the distribution function for the standard normal. Maximizing the log likelihood function with respect to θ_k gives consistent and efficient estimators and unveils the significant factors considered by the government in undertaking a given restructuring policy. Regarding policies requiring a choice of levels, such as the percentage of workers to fire before privatization, the estimation uses limited dependent variables with a tobit model censored from below at 0 and from above at 1.

I use four main groups of variables in the first stage to determine the probability that the government restructures before privatization:

(1) Agent banks in charge of organizing the auction:

A total of nine different financial institutions were involved as agent banks and were dummied for in the regressions. The three largest domestic commercial banks handled close to 40% of all privatization transactions. The agent banks were responsible for obtaining the SOE's information, suggesting restructuring measures, and organizing the auction itself. As a result, some prior restructuring policies are associated with certain banks. These dummies have very low correlation with PQ and are close to a randomly assigned instrument, since the government did not seem to follow any pattern assigning SOEs to agent banks.

(2) Ministries in control:

Different ministries account for differences in efficiency, bureaucratic hurdles, or simply in the willingness of certain politicians to adopt specific measures. This set of six dummies has some

industry correlation but also shows a level of randomness in the classification of SOEs across ministries (sometimes reflecting political considerations during different administrations). Over 50% of privatized SOEs were classified under the Ministry of Finance or the Ministry of Industry and Trade, for example.

(3) Predetermined company characteristics or sample-relative parameters:

Relative size of labor force, or assets within the whole population of SOEs, could influence the government's decision to restructure but should not have a direct effect on PQ. In fact, the relative size variables used here are correlated with the adoption of some prior restructuring policies, while their association with PQ is very weak.

(4) Years or periods:

Certain restructuring measures may have been undertaken at different times according to changes in budget constraints during recessionary or expansionary years. Similarly, restructuring policies may have changed between different administrations.

Bound et al. [1993], Nelson and Startz [1993], and Staiger and Stock [1993] have shown that a weak correlation between instruments and the endogenous variable instrumented produces large standard errors, which in the presence of even a small correlation between the instruments and the error of the second stage give rise to inconsistent I.V. estimates. Additionally, the presence of a finite sample bias makes the magnitude of the I.V. estimates' bias approach that of the OLS estimates as the instruments are weaker. Consequently, I calculate the F -statistics on the excluded instruments in the first-stage regressions. Results show that consistency and finite sample biases are unlikely to be problems in this paper.

In the second stage, instrumental variables are used to estimate the PQ equation which includes the restructuring policies. In this step, the policy predictor, \hat{r}_a , obtained in stage one is used as a *generated instrument* to account for the final impact of the policy on PQ. Newey [1984] shows that sequential estimators can be interpreted as members of a class of method-of-moments estimators, facilitating the derivation of asymptotic covariance matrices for two-step estimators. This approach, applied here for the case of a non-linear first-stage generated instrument, produces the same result in terms of covariance matrices.

III. THE SAMPLE

III.A. The Data

In March of 1992, the Mexican Ministry of Finance and Public Credit (SHCP) granted me authorization to review all privatization files in their archives. I also obtained data from the Ministry of Trade and Industry (SECOFI), the Underministry of Finance and Public Credit, the Federal Treasury, the Mexican Stock Market, several bidding companies, and some already privatized SOEs. Additional

sources include government statistics and publications, stock market data and reports, Central Bank statistics, journals, and newspapers.

Most of the data was collected from primary sources. It covers 361 companies privatized between November 1983 and June 1992, accounting for over 98% of all privatized Mexican companies up to that time. The database contains detailed information about the SOE being privatized, the auction process, the bids and the bidders. The documentation coded ranges from internal memoranda between government officials to technical and financial evaluations of the SOEs. The information is classified into the following categories:

- 1) *History of financial and production variables*: usually for the three to four years prior to privatization. The information includes data from income and expenditure statements, the general balance sheet, production, and installed capacity records.
- 2) *Ownership structure*: before and after privatization, and any changes made during the four years before privatization.
- 3) *Labor data*: number of unionized and non-unionized workers, union's type and affiliation, description of the collective contract, wages, workers' relations, and number of strikes.
- 4) *Management and board of directors*: number, composition, and ownership. They are classified as bureaucrats, experienced bureaucrats (over three years in the job and/or some qualifying degree), private sector managers, shareholders, and foreigners.
- 5) *Technology*: technology contracts with third parties.
- 6) *Market share*: includes percentage of domestic market, and exports.
- 7) *Industry characteristics*: type of competition, industry concentration, entry/exit barriers, international trade characteristics, and industry regulation (foreign investment, price controls, special government programs, etc.)
- 8) *Government's involvement*: reasons for and degree of presence, type of government company in terms of control, ministry in charge, and reasons for privatization.
- 9) *Restructuring before privatization*: all actions undertaken by the government after privatization was announced and before the sale. The costs of the measures are also available in most cases.
- 10) *The auction process*: auction steps and requirements, rounds of sale, and the number of bidders involved.
- 11) *Technical and financial evaluations of the company*: usually made by the agent bank in charge of the sale or by a consulting firm. The main problems and advantages of the SOE are determined based on these documents and some additional sources.
- 12) *Bidders*: classified according to their nationality, the industry in which they operate, and their relation connection to the privatized SOE.
- 13) *Bids*: their value, characteristics, terms, conditions, requests, and commitments offered. An implicit valuation of the cost of these conditions was also sometimes undertaken, based on the evaluation of the agent bank in charge of the sale.
- 14) *The sale contract*: with an evaluation of its terms and conditions, such as government and buyer

commitments.

- 15) *Post-sale adjustments*: including the costs or benefits from a post-sale financial evaluation of the company, as well as those cases where winners defaulted or renegotiations took place.

The data set consists of a cross-section panel containing data for each SOE for the four years prior to its privatization. Table II shows the distribution of SOEs sold each year. The number of companies or legal entities being privatized and the number of transactions differs because some companies were associations of enterprises or conglomerates or were put together in packages for privatization purposes. Although 361 companies were sold, involved only 236 transactions or "Privatization Contracts". Out of these contracts, I found available information for 221.³ Each Privatization Contract is treated as a single unit in the analysis.⁴

III.B. The Privatization Program in Mexico

The Mexican privatization program is one of the largest in the world in terms of number of companies privatized and their relative sizes. In 1982, there were 1,155 SOEs in Mexico in almost all sectors of the economy. That year, subsidies and transfers to SOEs equalled 12.7% of GDP. Their output accounted for 14% of GDP, they employed 4.4% of the country's labor force, and represented 38% of fixed capital investment. López-de-Silanes [1995] undertakes a comparative analysis of the relative performance of SOEs to-be-privatized and private firms during the 1980s. He finds that, on average, the privatized SOEs were money-losing operations, showed higher debt to assets ratios, had lower liquidity, and relied heavily on short-term debt. Since the SOEs to be privatized were chosen by the authorities because of their potential to be profitable or viable businesses, the performance comparison can be thought to represent an upper bound for the whole SOE sector in terms of profitability.

In 1983, under large fiscal pressures, a new administration undertook a "Restructuring Program of the SOEs" with the aim of increasing efficiency. This program involved restructuring measures for some SOEs and a "clean-up" of the SOE sector through four main mechanisms: liquidation, merger, transfer, and sale (privatization). Figure 1 shows the reduction in the number of SOEs by year. In the first years of the program, the number of SOEs was greatly reduced, mainly through liquidation and mergers. Privatization did not truly take off until 1985. By the end of 1988, the new administration had moved away from restructuring and towards privatization. In June of 1992, the number of SOEs had been reduced to 225, and 361 SOEs had been privatized using sealed-bid auctions of control packages. The

³ The two main reasons for the lack of information are: (i) 8 transactions with private majority shareholders, which lack many details of the process and information about the company itself; and (ii) 7 cases that either lack all financial statements and production information, or bidders and bids data, or the sale contract.

⁴ López-de-Silanes (1995c) studies all bids (totalling 839), winners and losers, and associates bidder characteristics to bid prices.

largest firms and the most complex cases were sold under the Salinas administration starting in 1989. The average size of SOE sold in 1988, measured in constant 1992 US dollars, increased two-fold in 1990, 11-fold the following year, and over 21-fold in 1992. Table III groups privatization contracts according to three-digit industry codes with selected important four-digit industry codes shown. The span of the program across industries is evident, ranging from commercial banks and steel conglomerates to sugar cane mills and one of the most popular soccer teams.

Table II

The Sample in Perspective

Year	Number of Companies Privatized	Number of Transactions	Final sample: Privatization Contracts	Sample Receipts as a percentage of 1992's GDP.
1983	4	2	1	0.00064 %
1984	3	1	1	0.00065 %
1985	32	10	9	0.05283 %
1986	30	16	11	0.03015 %
1987	22	17	14	0.07030 %
1988	66	51	51	0.40936 %
1989	37	29	29	0.22178 %
1990	91	63	63	1.18034 %
1991	65	37	32	2.91338 %
6/1992	11	10	10	1.71318 %
Total:	361	236	221	6.59262 %

By the end of the sample period, total proceeds from privatization amounted to close to 6.6% of 1992 GDP, with 91% of that collected during the Salinas years (Table II). The proceeds are actually small if we consider that privatized SOEs represented over 15% of the country's fixed investment. With the country's value of capital stock close to twice that of GDP, the value of the sold SOEs should have been close to 30% of GDP. One potential explanation for this finding could be that state-owned capital is quite unproductive.

III.C. Privatization Q (PQ), the Dependent Variable

Some characteristics of the dependent variable of this study are shown in Table III. The mean *PQ* for the whole sample is 0.5377, or 54 cents on the dollar, with a standard deviation of 0.79. An initial

TABLE III

Privatization Contracts according to Industry Classification

This table classifies Privatization Contracts across industries according to three-digit s.i.c. with selected important four-digit industry codes also shown. *BQ* is the present value of the nominal price adjusted by the percentage of shares sold, plus Total Liabilities of the SOE at the time of privatization all divided by Total Assets of the SOE at the time of privatization). *PQ* is the value of the Government's Net Privatization Price (GNPP) adjusted by the percentage of shares sold plus Total Liabilities at the time of privatization, divided by Total Assets of the SOE at the time of privatization. Both *BQ* and *PQ* are the mean values for each industry group shown.

Industry Code	Number of Contracts	Industry	<i>BQ</i>	<i>PQ</i>
2320	6	Mining of Metallic Minerals	0.7670	0.6016
2920	7	Mining of Non-metallic Minerals	1.3832	1.1117
3112	4	Milk Products	0.8693	0.6971
3113	4	Fruits and Vegetables	0.8793	0.8793
3114	12	Canned Fish and Seafood	0.6264	0.2925
3115	9	Grains and Oils	0.8511	0.7472
3118	29	Sugar	0.7975	0.7488
3122	10	Animal Foods	0.6746	-0.1333
3130	2	Beverages	0.8656	0.8656
3140	3	Tobacco	0.9195	0.9195
3210	8	Textiles, Clothing, and Leather	0.4409	0.1008
3311	4	Wood and Wood Products	0.3885	-1.4636
3410	4	Paper and Printing	0.6021	0.5980
3500	20	Chemicals, Oil Derivatives, and Plastics	0.9591	0.7691
3600	8	Non-Metallic Mineral Products	0.5358	0.1885
3700	21	Basic Metals and Derivative Products	0.4694	0.0667
3820	7	Heavy Machinery and Equipment	0.7743	0.7315
3830	5	Machinery and Equipment	0.6972	-0.1856
3840	11	Automotive Industry	0.6039	-0.0084
3842	2	Transportation Equipment	0.9331	0.7751
6310	6	Hotels and Restaurants	0.9654	0.7727
6400	7	Land and Sea Transportation	0.8352	0.6148
6440	3	Air Transportation	0.9534	0.3789
6520	1	Communications (Telephone services)	1.3398	1.3297
6600	18	Commercial Banking	1.1481	1.1188
6610	4	Insurance, Warrantor & Brokerage services	1.2310	1.2825
6900	4	Real Estate & Other Professional services	0.4937	0.5730
8000	2	Recreational and Entertainment services	1.2169	0.9057
	221	Total Sample	0.7981	0.5377

finding is that when all relevant costs of privatization are taken into consideration, the net price of the transaction is much less than the announced price in the sale contract. Adjusting the prices reported in the official statistics requires a significant amount of information, an analysis of the clauses of the sale contract, and the calculation of the restructuring costs incurred by the government prior to and connected to the sale.⁵ To get an idea of the cost of the adjustments and restructuring, Table III also shows the mean value of BQ for each sector, equivalent to PQ but substituting GNPP with "B" (the present value of the nominal price in the sale contract). The mean BQ for the whole sample was 0.7981. This means that adjustment and restructuring costs totalled 32% of the net present value of the nominal price in the contract. Taking account of these costs is essential in studying privatization for two main reasons: (1) the correlation between GNPP and B is low (close to 0.6), which implies that ignoring restructuring costs could lead to significant biases; and (2) the amount of resources spent by the government in prior restructuring is so large that it becomes essential to find out whether such policies increase net prices, the subject of section VI of this study.⁶

IV. PQ AND COMPANY CHARACTERISTICS

Having defined the price measure, this section studies its relation to company and industry characteristics. Appendices B and C provide definitions and summary statistics for the variables used in the study. The econometric analysis uses 166 of the 221 available privatization contracts due to the unavailability of some variables for some of the observations. All PQ regressions present OLS estimated coefficients with standard errors corrected for heteroskedasticity according to White [1980].⁷

⁵ The dates in which all these expenses were incurred varied widely, therefore all *peso* quantities are transformed to both constant pesos and constant U.S. dollars as of December 1992.

⁶ For comparison, an additional price standardization is also calculated as follows:

$$GNPP_i/E_{i,t_0} = \frac{GNPP_i/sh_i}{TA_{i,t_0} - TD_{i,t_0}}$$

where $GNPP/E$ takes $GNPP$, adjusted by percentage sold but this time normalized by total shareholders' equity defined as the difference of total assets and total liabilities at the time of privatization (t_0). The mean $GNPP/E$ is 0.5868 with a standard deviation of 1.22. Other standardizations calculated include $GNPP$ as numerator with the following denominators: (i) total assets before privatization; (ii) average four-year sales; and (iii) two-year average employment. Their correlations with the equity denominator are between 0.5356 and 0.6384. The same econometric analysis of the following pages was also carried out for the $GNPP/E$ measure as dependent variable without significant changes in the results.

⁷ As an alternative, all regressions in the paper were done using GLS with no significant change (not shown). Outliers and points with high leverage were excluded from the sample and regressions were rerun with no significant effect. Similarly, no significant change is observed when the econometric analysis included all 221 Privatization Contracts but omits the restricting labor characteristics. Throughout the rest of the paper I use labor force characteristics in the analysis as they account for an increase in the overall adjusted R^2 of between 0.06 and 0.09.

IV.A. Financial and performance parameters

Financial and production characteristics of the company are divided into four groups: profitability, activity level, liquidity, and leverage. Table IV presents the main results of a series of cross-section regressions done for different groupings of company characteristics with and without industry dummies. Throughout the paper we will use Regression I of Table IV as the *Basic Regression*, which identifies company and industry characteristics as well as auction parameters that significantly affect Privatization Q. Since PQ controls for debt-to-assets ratios, leverage measures are excluded from the independent variables. Liquidity measures were not significant in most cases (not shown in table). All regressions in Table IV yield large, positive and significant coefficients for profitability ratios (average net income over sales and average operating income over sales). For example, a 1% increase in the net income over sales ratio translates into an almost 2% increase in PQ evaluated at the mean.

Regression II in Table IV shows a positive, although not significant, relation between PQ and activity proxies such as the average capital utilization and the average rate of production growth in the period prior to sale. Capacity utilization has a positive coefficient, suggesting that installed capacity usage reveals in part the condition of the equipment and its expected profitability under private ownership.⁸

IV.B. Industry characteristics

Market structure and regulation in a particular industry may play a role in determining privatization premia. In some industries, the government has a large percentage of the market through a single SOE; several monopolies and oligopolies (e.g., airlines, telecommunications) fall in this category. In other sectors, although the government operations supply a large percentage of the market, each of the many plants or SOEs has only a small share of the market (e.g., sugar mills, animal foods, commercial banking). The results in Table IV show that the government's overall market participation influences PQ much more than the individual company's share does.

Part of this result could be explained by government regulation and protection against foreign competition. For example, the correlation between the percentage of government's share of the industry's output and a dummy equal to one if there is a special regulation in that sector is 0.6327.⁹ Although privatization usually entails industry deregulation, protection from competition is usually slowly eliminated. In fact, several of these industries face price and quantity restrictions; deregulation tied to

⁸ Some evidence pointing in this direction is based on the low correlation, only -0.0749, between installed capacity utilization and a dummy equal to 1 if the evaluation of the firm detected problems of old or obsolete machinery, or lack of investment and maintenance. Meanwhile, the correlation of installed capacity utilization and a dummy equal to one if the evaluation detected good conditions of property, plant, and equipment was 0.126.

⁹ Meanwhile, the correlation between the government's participation in an industry and the percent of foreign ownership allowed in the industry is -0.1277.

TABLE IV
COMPANY CHARACTERISTICS AND THE AUCTION PROCESS

Ordinary least squares regressions of the cross section of SOEs privatized in Mexico between 1983 and 1992. The dependent variable is "Privatization Q," the Government's Privatization Price (GNPP) adjusted by the percentage of shares sold, plus Total Liabilities at time of privatization, divided by Total Assets of the Company at time of privatization. "Net Income/Sales" and "Operating Income/Sales" are the pre-privatization four-year averages of Net Income over Total Sales and Operating Income over Total Sales respectively; "Growth in Production" is the pre-privatization four-year geometric average of production growth; "Capacity Utilization" is the two-year average of capacity utilization before privatization; "Contingent Labor Liabilities per Worker" is the average cost of firing a worker the day after privatization; "Number of Strikes" is the number of strikes in the five years before privatization; "Government in Industry" is the government's percentage share in the industry's output before privatization; "Non-control Package dummy" equals 1 when the percentage sold does not give control to the buyer and 0 otherwise; "Company Market Share" is the three-year average market share of SOE before privatization; "Non-tradeable Good dummy" equals 1 if the main product of the company is a non-tradeable good and 0 otherwise; "Percentage Sold" is the percentage of shares sold in privatization. "1988-1992 dummy" is equal to 1 when the SOE was privatized between 1988 and 1992 and 0 otherwise; "Total Length" is the total number of days between the first recommendation to privatize and the privatization date; "Number of bidders" is the number of different bidders involved in privatization; "FDI allowed dummy" is equal to 1 if the foreign investors are allowed to participate in the sale; "Cash-sale only dummy" is equal to 1 if the privatization payment had to be made in cash. White (1980) corrected standard errors are given in parentheses.

Independent Variables	Dependent Variable: Privatization Q			
	Basic Regression I	II	III	Control Privatizations IV
Net Income/Sales	0.9468 * (0.2063)		0.9187 * (0.2126)	0.7638 * (0.2130)
Contingent Labor Liabilities per worker	-0.0159 * (0.0043)	-0.0184 * (0.0049)	-0.0194 * (0.0049)	-0.0192 * (0.0046)
Number of Strikes	-0.1324 * (0.0344)	-0.1375 * (0.0383)	-0.1250 * (0.0347)	-0.0935 * (0.0347)
Government in Industry	0.3880 * (0.1947)	0.4537 * (0.2235)	0.3482 * (0.1881)	0.4703 * (0.2196)
Non-Control Package dummy	-0.4383 * (0.1492)	-0.4239 * (0.1570)	-0.4069 * (0.1566)	
Operating Income/Sales		0.5390 * (0.1622)		
Growth in Production		0.0380 (0.1951)		
Capacity Utilization		0.1776 (0.1543)		
Company Market Share			0.1743 (0.2235)	
Non-tradeable Good dummy			0.1841 (0.1821)	
Percentage Sold				-0.5997 (0.3943)
1988-1992 dummy	0.2075 (0.1285)	0.2758 * (0.1548)	0.0748 (0.1312)	0.2544 * (0.1381)
Total Length	-0.0004 * (0.0001)	-0.0005 * (0.0001)	-0.0004 * (0.0001)	-0.0003 * (0.0001)
Number of bidders	0.0884 * (0.0216)	0.0814 * (0.0246)	0.0819 * (0.0238)	0.0859 * (0.0230)
FDI allowed dummy	0.2662 * (0.1640)	0.2362 (0.2157)	0.1084 (0.1911)	0.1912 (0.1429)
Cash-sale only dummy	-0.1889 * (0.1031)	-0.2529 * (0.1092)	-0.1033 (0.1063)	-0.1510 (0.1162)
Intercept	0.9189 * (0.2316)	0.9998 * (0.2965)	0.8485 * (0.2234)	0.9143 * (0.3005)
Industry Dummies	yes	yes	yes	yes
Number of Observations	166	159	166	150
Adjusted R ²	.4999	.4166	.4619	.4979

* Significant at 1 percent. * Significant at 5 percent. * Significant at 10 percent.

privatization could allow companies to increase prices. The correlation between the percentage of government's share of total production and dummies for the existence of price and or quantity deregulation tied to privatization are 0.58 and 0.62 respectively. Alternatively, industries previously dominated by government operations may in fact be those with the highest potential to exploit benefits when opened to private ownership. One can therefore expect a premium to be paid for SOEs in such industries regardless of the relative share of a particular firm at the time of its privatization, since that share may reflect other factors, such as the government assigning production among plants following criteria other than profit maximization, for example.

Finally, in contrast to some of the literature on the relevance of international trade characteristics of the industry (World Bank [1992]), this study finds no significant difference between tradeable and non-tradeable goods sectors in terms of PQ (regression III of Table IV). Other trade measures such as the share of exports in company sales and the degree of import competition in the market are not significant (not shown in tables).

IV.C. Labor

Privatization winners not only buy the physical capital of the company, they also acquire a *labor contract*. I created two measures that capture the cost of the labor contract and the strength of the union. To measure how much it would cost to fire a worker, I calculate the "contingent labor liabilities per worker," equal to the cost of firing the average employee if the new owner decides to do so the day after buying the firm.¹⁰ The second labor measure I use is the number of strikes experience by the SOE in the five years before privatization. This number is associated with the pugnacity of the union and serves as an index of labor-management relations. The correlation between contingent labor liabilities per worker and the number of strikes for the sample is -0.0688, indicating that a combination of these two variables is needed to cover complementary aspects of the labor situation of the firm. Supporting Freeman's [1986] evidence on the relatively lower frequency of strikes by public versus private unions, SOEs to be privatized suffer very few strikes before privatization. No strikes occurred in 55.6% of the sample, while 44.4% experienced between 1 and 4 strikes.

The results in all regressions of Table IV (and the following tables) show a negative sign on both the labor variables.¹¹ The coefficient on contingent labor liabilities suggests that SOEs where an average worker costs twice as much as the mean cost have a 3% lower PQ. One of the most striking results is that an additional strike in an SOE leads to a 18% reduction in the net price evaluated at the mean

¹⁰ To compute this number, I include the benefits specified in the collective union contract. On average, when a public sector worker is fired, these benefits take the form of: (1) an average of 3 months of salary; (2) 20 to 40 days of "vacations" bonus; (3) 15 to 20 days of salary for each year the worker was employed; and (4) a special bonus which varied across SOEs and ranged between 1 and 5 months of wages.

¹¹ The adjusted R² increases close to 0.09 when I include these two labor variables.

predicted PQ.¹² Labor factors play a central role in explaining privatization prices.

IV.D. Control versus Revenue Privatizations

Privatization may involve a change in control. As already mentioned, several theories bear on the relative merits of control and revenue privatizations. To address these issues, I created a "Non-control Package" dummy identifying the cases when the sale did not include control. A total of 29 observations falls in this group and all refer to government joint ventures in which private firms controlled of the SOE before privatization. Various performance measures for this group are above the average of the rest of the privatized firms. But all regressions in Table IV show once we control for performance, non-control privatizations face a statistically significant and economically large discount. Non-control packages bring net prices equivalent to 25% of those generated by similar packages of shares which do give control rights to the buyer. This result shows a significant premium for obtaining control versus becoming a minority shareholder in an already privately-controlled firm.

Regression IV in Table IV uses the same specification as in the Basic Regression but includes the subsample of control privatizations only. The results show that the percentage of shares privatized is not statistically significant. This evidence makes clear that a significant premium is obtained for the privatization of majority holdings which give the buyer control; once control rights are sold, the actual percentage of shares privatized does not affect prices.¹³

IV.E. Period, Order, and Learning Effects

Macroeconomic conditions could play an important role in determining *PQ*. In the first phase of privatization (1983-1987), the government emphasized restructuring the public sector. Large restructuring packages covering investment, debt absorption, and company productivity commitments were signed in this period. The next phase of the program (1988-1992) started not only with a large macro stabilization package, but also with a shift of privatization to the center of the economic agenda. The government created an Office of Privatization with broad powers and strong support from the President. As an illustration, internal files of the administration show that the question directed to different ministries shifted from which companies should be privatized to which SOEs should remain public and why.

¹² All regressions in the paper were also run excluding the five outlying observations with the highest number of strikes without observing any significant changes in the results.

¹³ A final point of debate in this area is that of partial privatization or the case when the government stays as a partner. Kikeri et al. [1992] suggest the idea of keeping a "golden share" for government in some special cases when political concerns would otherwise prevent privatization. In my sample, the government kept a minority share in eight SOEs making clear its intention to sell the stock to the private sector in later offerings through the stock market. The econometric specifications exploring joint-ventures with the government, show a positive coefficient with very large standard errors. It is hard to interpret this coefficient in my sample since in most of these cases, the government gave its voting rights to the control group. These results are not shown in the paper but are available upon request.

To test the hypothesis of the difference between the two periods, all regressions include a dummy variable equal to one for those companies privatized between 1988 and 1992 and 0 otherwise. All regressions in Table IV, and throughout the rest of the paper, show a positive coefficient on the "1988-1992" dummy with a *t*-statistic around 1. Evaluated at the mean, a company sold during the second phase is priced between 20 and 25% higher than those privatized before 1988. This result could be capturing the improved growth outlook during the second period.¹⁴

V. PQ AND THE AUCTION PROCESS

V.A. Speed in Privatization

Length regressions

Studying different measures of the time spent on the sale of each SOE gives evidence on the benefits of speed in privatization. To capture this effect, I first construct a variable labelled "Total Length," which represents the number of days between the date of the first document within the government that mentions the possibility of privatization of an SOE and the date of the announcement of the buyer. The stakeholders of the SOE likely learned the news of privatization around the date of the first memo. When I introduce this variable in the first regression of Table V, I find evidence of a significant discount for longer privatizations.

To determine the causes of this premium for speed, total length is divided into two subperiods (detailed in Appendix A). *Public* length (from the date of the first public announcement until the date of the sale) proxies for the effect of slow "public sale time," which typically means that several auction rounds were needed because either the government did not accept the bids or no bids were registered in the first round. One might expect the worst companies to have longer public length and possibly end up with a lower relative price. Instead, regression II in Table V reveals that public length is not the factor which leads to lower prices, pointing to the absence of a penalty for those companies with several auction rounds.

Internal length is defined as the number of days from the date of the first memo suggesting privatization of an SOE to the date of the first public announcement. This number may be related to the efficiency of

¹⁴ It is also conceivable that the experience gained through time could explain the positive coefficient of this dummy variable; that is, prices might increase as the participants gain credibility in the program and the government gains experience. I explored this hypothesis in three ways. First, I looked for a learning effect throughout the whole program, with linear and concave functional forms of a variable which measured the order of sale, but found no statistical significance. Second, I created a within-industry-order variable, the coefficient of which shows an economically small though marginally statistically significant positive trend. Finally, I ran several specifications looking for year or quarter effects to identify possible economy-wide trends that would be reflected in the price pattern. No significant effects were found, with the exception of two quarters in the recession year of 1986, which had significant negative coefficients associated with them. These results are not shown but are available upon request.

TABLE V
LENGTH OF PRIVATIZATION PER COMPANY

Ordinary least squares regressions of the cross section of SOEs privatized in Mexico between 1983 and 1992. The dependent variable is "Privatization Q," the Government's Privatization Price (GNPP) adjusted by the percentage of shares sold, plus Total Liabilities at time of privatization, divided by Total Assets of the Company at time of privatization. "Net Income/Sales" is the pre-privatization four-year average of Net Income over Total Sales; "Contingent Labor Liabilities per Worker" is the average cost of firing a worker the day after privatization; "Number of Strikes" is the number of strikes in the five years before privatization; "Government in Industry" is the government's percentage share in the industry's output before privatization; "Non-control Package dummy" equals 1 when the percentage sold does not give control to the buyer and 0 otherwise; "1988-1992 dummy" is equal to 1 when the SOE was privatized between 1988 and 1992 and 0 otherwise; "Total Length" is the total number of days between the first recommendation to privatize and the privatization date; "Public Length" is the number of days between the first public announcement of privatization and the day of the announcement of the winner; "Internal Length" is the number of days between the first recommendation for privatization and the first public announcement of privatization; "Number of bidders" is the number of different bidders involved in privatization; "FDI allowed dummy" is equal to 1 if the foreign investors are allowed in to participate in the sale; "Cash-sale only dummy" is equal to 1 if the privatization payment had to be made in cash. White (1980) corrected standard errors are given in parentheses.

<i>Independent Variables</i>	<i>Dependent Variable: Privatization Q</i>		
	<i>Length of Process I</i>	<i>Public Length II</i>	<i>Internal Length III</i>
Net Income/Sales	0.8794 ^a (0.2038)	0.8999 ^a (0.2290)	0.8776 ^a (0.2214)
Contingent Labor Liabilities per worker	-0.0124 ^a (0.0049)	-0.0190 ^a (0.0048)	-0.0187 ^a (0.0049)
Number of Strikes	-0.1232 ^a (0.0340)	-0.0883 ^b (0.0368)	-0.1173 ^a (0.0364)
Government in Industry	0.4688 ^b (0.2034)	0.4292 ^c (0.2399)	0.4864 ^b (0.2205)
Non-control Package dummy	-0.4146 ^a (0.1570)	-0.3285 ^c (0.1993)	-0.3623 ^c (0.1913)
1988-1992 dummy	0.1066 (0.1277)	0.2321 (0.1712)	0.1853 (0.1574)
Total Length	-0.0004 ^a (0.0001)		
Public Length		0.0000 (0.0002)	
Internal Length			-0.0004 ^a (0.0001)
Number of Bidders	0.0824 ^a (0.0241)	0.0974 ^a (0.0292)	0.0938 ^a (0.0258)
Number of Rounds	0.0268 (0.0626)	-0.0520 (0.0829)	-0.0483 (0.0649)
FDI not allowed dummy	-0.0775 (0.1897)	-0.2621 (0.2134)	-0.1500 (0.2020)
Cash-sale only dummy	-0.1168 (0.1063)	-0.1631 (0.1222)	-0.1570 (0.1176)
Intercept	0.9923 ^a (0.2430)	0.5381 ^b (0.2651)	0.8426 ^a (0.2826)
Industry Dummies	yes	yes	yes
Number of Observations	166	148	146
Adjusted R ²	.4669	.4692	.4571

^a Significant at 1 percent. ^b Significant at 5 percent. ^c Significant at 10 percent.

bureaucratic procedures. Additionally, this variable may hint at internal difficulties in placing the SOE for sale, such as stakeholder opposition and management resistance to providing the evaluators with financial information.¹⁵ Typically, a detailed technical and financial study has been completed by the time when the sale of the SOE is publicly announced. The financial statements thus produced bind the government, which is liable for any discrepancies between this financial evaluation and the actual numbers found once the firm is privatized. In regression III of Table V, the coefficient on internal length is negative and significant. This number should be interpreted as the *penalty for each additional day* in putting the company on the block. Evaluated at the mean value of PQ, a company would carry a discount of an extra 6% if it took an additional 3 months of internal length.

To address the concern of possible endogeneity of the length measures, I implemented the two-stage econometric procedure explained in section II. The results, shown in Appendix D, not only preserve the statistically significant negative relation between length and PQ, but also give a larger coefficient. In the case of internal length, the coefficient changes from -0.0004 to -0.0006, raising the average penalty for 3 extra months of internal length to 9% of PQ, evaluated at the mean.

Comparative performance before privatization

SOE performance deteriorates before privatization, and this may explain why a time-consuming process depresses the price. Table VI contains financial and performance data of the to-be-privatized SOEs in the t_{-3} , t_{-2} , t_{-1} , and t_0 years before their privatization (where t_0 is the year of privatization). As the day of sale approaches, a decrease in profitability is clearly evident from this table. There is a 5 percentage points decrease in the "net income to sales" ratio in years t_{-1} and t_0 . Liquidity and market penetration fall throughout the period, particularly in the last two years. As privatization approaches, the incentives of the managers, workers, shareholders seem to collapse, severely affecting the company's activity and profitability. Managers often take golden parachutes before resigning (it is fairly common for bidders to stipulate no last minute management turnover). Similarly, workers try to extract more concessions in the annual collective contract revisions before privatization. Current and even fixed assets may be lost during the final weeks.¹⁶ We cannot rule out the possibility that the observed deterioration results from the same causes that account for lower performance of firms under financial distress, especially since privatization very likely will change the operations, production, and running of the firm.

¹⁵ Although one might expect that the largest companies have longer internal length, the correlation between total assets and internal time is very small (only 0.084).

¹⁶ To help prevent the loss of assets, at the end of the privatization program the government instituted a system by which all heads of departments of an SOE had to provide periodic reports of the assets under their control. In some cases, these reports were put in a data bank and bidders could access them electronically.

Table VI
Pre-privatization Performance of the whole sample
 (mean values)

Index	t_0	t_1	t_2	t_3
Operating Profit / Sales	- 0.1098	- 0.1089	- 0.0998	- 0.0561
Net Income / Sales	- 0.1968	- 0.1914	- 0.1421	- 0.1441
Sales / Total Assets	0.8249	0.8357	0.9109	1.0636
Tot. Liabilities/Tot. Assets	0.4762	0.4688	0.4912	0.6223
Capacity Utilization	0.4987	0.5287	0.5690	0.5829
Labor Productivity Change	- 0.0267	- 0.0673	- 0.0215	----
Number of Observations	197	197	197	197

Given these tendencies for the whole sample, Table VII splits the to-be-privatized SOEs into two groups, those with internal time less than the mean (422 days), and those with internal time greater than the mean.¹⁷ At t_3 both groups look very similar, with the below-mean group composed of smaller firms registering larger losses. Performance shifts in the year before privatization (t_1) when the SOEs above the mean (panel b) now record the highest losses, while the group with speedy privatizations (panel a) improves its profitability and market penetration. The leverage of the former also increases, in contrast to the lower debt levels of the below-mean group. Thus, those companies with longer internal times of privatization suffer greater deterioration. These results point to a premium for *speed*.

V.B. Number of Bidders and Renegotiation Rounds

Auction theory predicts an increase in the premium paid for an auctioned good as the number of bidders increases. A total of 529 different companies, individuals, and unions were identified as bidders.¹⁸ I computed two indices: (i) number of bidders in the final sale round; and (ii) total number of different bidders involved in all auction rounds. As shown in Table VIII, the mean number of bidders in the final sale round is only 2.57. Almost 85% of the sample has no more than four different bidders, while 29.6% has only 1 bidder but possibly multiple rounds. The vast majority of the companies were sold in the first round, and only 14 companies needed more than three rounds.

¹⁷ I find no significant changes when using the median to split the groups.

¹⁸ As expected, the name of the bidding group alone is not enough to accurately determine the real owner. It is common to find the same underlying shareholders bidding through different companies or in association with someone else. It was therefore necessary to go one level down and screen the underlying structure of each registered bidder.

Table VII

Panel a: Pre-privatization performance of firms *below* the mean number of days of Internal time. (mean values)

Index	t_0	t_1	t_2	t_3
Net Income / Sales	0.1583	- 0.1964	- 0.1610	- 0.1616
Sales / Total Assets	0.9942	0.9705	1.1274	1.2816
Tot. Liabilities/Tot. Assets	0.3940	0.4431	0.4728	0.5806
Number of Observations	67	67	67	67

Panel b: Pre-privatization performance of firms *above* the mean number of days of Internal time.

Index	t_0	t_1	t_2	t_3
Net Income / Sales	- 0.2184	- 0.1858	- 0.1249	- 0.1287
Sales / Total Assets	0.6708	0.6948	0.7104	0.8572
Tot. Liabilities/Tot. Assets	0.5731	0.4966	0.5082	0.6617
Number of Observations	71	71	71	71

PQ and the number of bidders in the auction may move together if they are both correlated to a third set of variables that reflect the quality of the object for sale. Accordingly, the number of auction rounds and PQ would be expected to move in opposite directions (i.e., valuable SOEs sell in fewer rounds and attract both higher bids and more bidders). With this in mind, I use two methods to explain the influence of competition in the auction on prices. First, I use the set of significant control variables determined in previous sections to control for the quality of the SOE.¹⁹ The results in all regressions of Tables 4 and 5 show that for an SOE sold at the mean PQ, an additional bidder in the final round would have increased the price by more than 15%. The bidder-premium elasticity is around 1.4 for final round bidders and 1.55 for a bidder in the process.

Theoretically, the possibility of renegotiation or multiple auction rounds could have an impact on the strategies followed by the bidders, and therefore affect PQ. The coefficient on the effect of increased number of rounds shows large standard errors, precluding clear conclusions (Table V). A variety of reasons could explain why a company takes several rounds to sell, ranging from cases where there are no bids, to those where renegotiation leads to extra rounds or where the highest bids are too close to decide and participants are asked to bid again.

¹⁹ The existence of multicollinearity between the SOE characteristics and the number of bidders and rounds could lower the significance level of the estimated coefficients. The correlation between bidders and rounds, and the rest of the controls is nonetheless small, ranging from 0.02 to 0.37 in absolute values. Therefore, since correlations are not large and the procedure still gives unbiased estimates, this problem is considered minor.

Table VIII

Distribution of the number of bidders and auction rounds

Sold in Round:	Percentage of Contracts	Mean number of bidders in final round	Total number of different bidders	
			Mean	Maximum
1	63.35 %	2.647	2.647	11
2	13.08 %	2.333	3.058	10
3	7.24 %	2.625	4.312	9
4	2.71 %	3.000	4.000	7
5	1.36 %	2.333	3.333	4
6	1.81 %	2.750	3.500	4
7	0.45 %	2.000	4.000	4
Total:	221 contracts	2.577	2.931	11

The second approach to explain the impact of auction competition on prices goes a step further considering the possibility of endogeneity by following the two-stage procedure outlined in section II. The results preserve the statistical significance of the coefficient on the number of bidders, though its value is reduced from 0.09 to around 0.06 (not shown). The coefficient on the number of rounds is still positive and insignificant as in the one-stage regression. Overall, these numbers point to higher premia as auction competition increases.

V.C. Auction Restrictions

Although all privatizations in Mexico were first-price sealed-bid auctions, not all auction requirements for each company were the same. Based on internal documents and guidelines, I coded 26 *auction requirements*, which can be classified into five categories: (1) foreign investment; (2) ownership or type-of-bidder restrictions; (3) investment plan requirements; (4) contract/supply commitments; and (5) form of payment. To determine the individual effects of these requirements, I ran several specifications of the "Basic Regression" in Table IV including different sets of the dummies for requirements (not shown).²⁰ Table IX presents the main results and separates the impact of requirements on PQ into two panels, according to negative and positive effects.

²⁰ Attention is paid in the estimation to high correlation between requirements. In two instances, I eliminated requirements from the equation to avoid multicollinearity. Total length (instead of internal length) is used in the rest of the paper as it allows us to keep the observations covering non-control packages in the sample. In these 16 cases, no formal public announcement was made in the newspapers, so there is no clear boundary between internal and public time.

Foreign Direct Investment

Current research has not estimated the influence of foreign investors in privatization. In our sample, foreigners participated actively, winning in 6.3% of the auctions and forming winning joint ventures with domestic firms in another 9.1% of all privatizations. Lower PQs are associated with those cases where foreigners were not allowed to participate (see Table IX). Opening the auction to foreign bidders increases competition and translates into higher premia for the government.

Ownership period and type of bidders

Evidence also shows that restrictions on period of ownership or on the allowed characteristics of competing bidders lower PQ. Examples include the requirements of exclusive ownership for a minimum number of years (usually 3 to 5), requirements on previous experience, or access to technology, and the existence of a pre-qualification round. All translate into lower PQs. Table IX shows that, evaluated at the mean predicted PQ, cases with "Ownership/Bidder Restrictions" fetch close to 40% lower prices.

Investment plans and contract commitments

In 64 cases of our sample, bidders were required to submit a fairly detailed investment plan along with their bid. In another 6 cases, the government required the winner to meet all the previous contracts of the SOE. The coefficients on both of these dummies are negative, but the standard error is too large to draw conclusions.

Form of payment

In theory, the announcement of a minimum bid floor provides more information about the company and increases the number of bidders by one, since bidders have to compete against this reservation price.²¹ The estimated coefficient on this requirement (Table IX) gives no conclusive evidence. Finally, in 75 of the 221 privatization contracts, the authorities required the bidders to pay cash. Governments have been imposing this requirement to try to avoid some sad experiences in other countries (notably Chile) where an excess of debt in the payment structure led to defaults and to the government getting the firm back. Aghion, Hart, and Moore [1992] suggest that cash-only auctions may preclude an interested bidder from acquiring the company at its maximized value because the cost of financing a cash bid may be significant, at least for the large transactions.²² In our sample, I find evidence along these lines with a negative coefficient but no statistical significance. The coefficient implies close to a 20% discount, evaluated at the predicted mean PQ.

In summary, the main effects of privatization auction requirements are negative for all conditions

²¹ This assumes that the government's threat of keeping the company if all bids are below the minimum bid floor is credible.

²² The authors suggest that these costs could be in the same range as those quantified by Ritter [1987] in the case of initial public offerings (IPOs). In this study, Ritter quantifies direct expenses and underpricing costs between 21 and 32% of the realized market value of the issue.

TABLE IX
AUCTION REQUIREMENTS

Ordinary least squares regressions of the cross section of SOEs privatized in Mexico between 1983 and 1992. The dependent variable is "Privatization Q," the Government's Privatization Price (GNP) adjusted by the percentage of shares sold, plus Total Liabilities at time of privatization, divided by Total Assets of the Company at time of privatization. "Net Income/Sales" is the pre-privatization four-year average of Net Income over Total Sales; "Contingent Labor Liabilities per Worker" is the average cost of firing a worker the day after privatization; "Number of Strikes" is the number of strikes in the five years before privatization; "Government in Industry" is the average cost of percentage share in the industry's output before privatization; "Non-control Package dummy" equals 1 when the percentage sold does not give control to the buyer and 0 otherwise; 1988-1992 dummy is equal to 1 when the SOE was privatized between 1988 and 1992 and 0 otherwise; "Total Length" is the total number of days between the first recommendation to privatize and the privatization date; "Number of bidders" is the number of different bidders involved in privatization; "Ownership/Bidder Restrictions" is equal to 1 if there were any restrictions on period of ownership or on the allowed characteristics of competing bidders and 0 otherwise; "Cash-sale only dummy" is equal to 1 if the privatization payment had to be made in cash; "Announced Minimum Bid Floor" is a dummy equal to one if the government announced a minimum floor to accept bids (a reservation price) and 0 otherwise; "Buyers have to meet all Company Contracts" is a dummy equal to one if the government required the winner to meet all the previous contracts of the SOE and 0 otherwise; "Investment Plan Required" is a dummy equal to one if bidders were required to submit a fairly detailed investment plan along with their bid and 0 otherwise; "FDI allowed dummy" is equal to 1 if the foreign investors are allowed to participate in the sale; "Cash/Installments schedule provided" is a dummy equal to 1 if the government provided the bidders with a calendar of payments that had to be made in case of winning in the auction. White (1980) corrected standard errors are given in parentheses.

Independent Variables	Dependent Variable = Privatization Q						
	Requirements with Negative Effects		Requirements with Positive Effects				
	Coeff.	Std. Err.	Coeff.	Std. Err.			
Net Income/Sales	0.9192*	(0.2065)					
Contingent Labor Liabil. Per worker	-0.0109*	(0.0047)					
Number of Strikes	-0.1063*	(0.0320)					
Government in Industry	0.4019*	(0.1929)					
Non-control Package dummy	-0.4712*	(0.1459)					
1988-1992 dummy	0.1889	(0.1228)					
Total length	-0.0004*	(0.0001)					
Number of Bidders	0.1145*	(0.0249)					
Intercept	0.9908*	(0.2242)					
			Ownership/Bidder Restrictions	-0.3814	(0.2862)	-1.333	
			Cash-sale only	-0.1175	(0.1115)	-1.054	
			Announced Minimum Bid Floor	-0.0442	(0.2072)	-0.214	
			Buyers must meet all Company Contracts	-0.0495	(0.1265)	-0.391	
			Investment Plan Required	-0.0252	(0.1265)	-0.149	
			Foreign Direct Investment Allowed			0.2464	(0.2056)
			Cash/Installments schedule provided			0.0901	(0.1520)
							1.198
							0.593
Industry dummies	yes						
Number of Observations		167					
Adjusted R ²		.5004					

* Significant at 1 percent * Significant at 5 percent * Significant

constraining participation (such as ownership restrictions, pre-qualifications, and preference given to selected groups of bidders) and for forms of payment and other requirements which reduce the flexibility of the form of the bid.

VI. PQ AND PRIOR RESTRUCTURING IN PRIVATIZATION

VI.A. Some Dos and Don'ts in Prior Restructuring

As shown in Table II, restructuring costs prior to privatization are quite high averaging, 32% of the nominal price of a privatization contract (BQ). The total cost associated to prior restructuring is not only the direct cost of each measure undertaken, but also its direct impact on PQ and the increase in length of time to privatize, which has been shown to impact premiums negatively. This raises the following questions: Should the government engage in prior restructuring? If so, in what forms? Table X divides the sample into two groups: (type a) those companies where restructuring did occur, and (type b) those where it did not. The table also shows the results of a difference in means test for the mean PQ of these two groups for each restructuring policy. If the data used to calculate PQ were all the available information one had to evaluate the effect of prior restructuring actions -- a not unreasonable assumption for policy makers -- two of the clearest policy recommendations that would emerge would be to avoid debt absorption or union contract restructuring (Table X). But, as we will show later, since these policies are endogenous, drawing conclusions from Table X could lead to erroneous recommendations.

TABLE X
PRIOR RESTRUCTURING MEASURES

Mean values of "Privatization Q" of the groups of companies where: (a) the restructuring measure was taken; and (b) the restructuring measure was not taken. "Privatization Q" is equal to the "Government's Net Privatization Price" (GNPP) adjusted by the percentage of shares sold, plus Total Liabilities at the time of privatization, divided by Total Assets of the company at the time of privatization. The exact definitions of other variables can be found in Appendix C. The difference between the mean PQ of group "a" and the mean PQ of group "b" is shown in the third column. The last column reports the resulting t-statistic of a difference in means tests of the mean PQs of these two groups. The number of observations in each group are given in parentheses.

	(a) Measure Taken		(b) Measure Not Taken		Difference in Means (a) - (b)	t - stat.
CEO change	0.8679	(31)	0.6064	(146)	0.2615	1.75 *
Management team change	0.6401	(26)	0.6543	(151)	-0.0142	-0.09
Labor cuts	0.5472	(63)	0.7102	(114)	-0.1630	1.48
Union contract restructuring	0.0842	(14)	0.7010	(163)	-0.6168	-2.74 ^b
Debt absorption	0.0621	(70)	0.7899	(132)	-0.7278	-5.82 ^a
Efficiency measures	0.5954	(39)	0.5239	(163)	0.0715	0.46
Investment measures	0.4967	(45)	0.5495	(157)	-0.0528	-0.44
De-investment measures	0.8288	(41)	0.4636	(161)	0.3652	2.89 ^a

* Significant at 1 percent; ^b Significant at 5 percent; ^c Significant at 10 percent

The rest of this section studies the price effects of prior restructuring measures connected to privatization. The access to detailed information allows to estimate the impact of restructuring actions on net prices by two methods. The first considers policy actions as exogenous and estimates PQ regressions of the same form as those in previous sections but now including restructuring policy variables. The second, and more appropriate, approach captures the endogeneity of prior actions by implementing the two-stage procedure outlined in section II to evaluate the final impact of prior restructuring on PQ. This approach is appealing because it reveals the explanatory variables influencing the government's decision to restructure an SOE, and enables us to determine some *dos and don'ts* in prior restructuring by the government.

Table XI pulls together the individual restructuring measures described in Table X. The first column of Table XI considers prior restructuring measures as exogenous and estimates directly the OLS White-corrected regression. The second column uses the two-stage procedure to take account of the endogeneity of prior restructuring policies. All F-tests on excluded instruments for each policy action allow us to reject the null hypothesis and accept the significance of the instruments list or its correlation with the endogenous explanatory variable in each case. The results shown in Table XI are also robust to instrument specifications. The remainder of the section will show that taking account of the endogeneity of restructuring policies reverses some of the results in Table X and in the one-stage (OLS) specification.²³

VI.B. Management Changes

Two policies are examined: change of the CEO and changes of other members of the management team.²⁴ In several of these cases, the prospectus given to the bidders emphasized management change and the substitution of the "old guard" with a "young and dynamic" CEO or team of managers with the task of getting the firm ready for privatization.

CEO Changes

In 33 instances in our sample, the CEO was fired before privatization. To illustrate the results we obtain when we take account of endogeneity, Appendix E presents the specification used in the first stage

²³ The policies analyzed in this paper occur frequently, allowing us to perform econometric tests. Some of the asset restructuring measures, such as the breaking up of companies, asset spin-offs, and the packaging of several SOEs together for their sale were also explored in a similar way as the one outlined in the following pages. No significant effect on PQ was observed for the use of these measures. López-de-Silanes (1995a and 1995b) explore the interaction of regulation, de-regulation, and privatization as well as their results as reflected in post-privatization industry performance.

²⁴ In cases concerning the board of directors, few involved creation of a board, and those involving changes in board composition took place only in two or three industries and were usually tied to a reclassification of the company in other sector for the purpose of privatization.

probit to obtain the predictor of the CEO change dummy.²⁵ As can be inferred from the table in Appendix E, most CEOs were fired during the Salinas administration, were career bureaucrats without specific expertise in the business, and headed large firms. No CEO (nor any other directors) were fired from SOEs when they had links with the union or with private shareholders. SOEs with third parties supplying proprietary technology or distributing the company's products, or those SOEs that acted as suppliers for other SOEs suffered fewer CEO changes.²⁶ In the second stage panel of Appendix E, the "CEO change" predictor is used as a generated instrument to measure the final impact of firing the CEO on PQ. SOEs where the government changed the CEO have a substantially higher PQ. This result is confirmed in Table XI both in the one-stage and in the two-stage panels. Firing the CEO and putting a *privatizer* in charge of cleaning up the company and getting it ready for sale as fast as possible is a worthwhile strategy for increasing net prices.

Management Team Changes

The number of cases with management team changes, other than the CEO, totals 43. The two-stage procedure uses a Tobit censored from below at 0 and from above at 1, representing the range between 0 and 100 percent, to generate a predictor of the percent of manager cuts, other than the CEO. In the second stage, the predictor produces a positive effect on PQ, but the standard error is too large to draw firm conclusions (not shown in tables).²⁷

The results indicate that firing management without sacking the CEO does not bring a premium. Although it is likely that the ousting of a CEO is followed or accompanied by some firing of the management team, it is the removal of the CEO that is associated with statistically significant higher PQs. As will be shown below, firms where the old management team was left in place show higher occurrences of efficiency or investment programs. In this sense, the positive effect associated with a change in management could also be explained by the fact that the old CEOs are more expensive during the transition because they spend more resources on efficiency programs.

VI.C. Labor

Previous sections of the paper reveal the importance of labor characteristics in determining PQ and this section takes an additional look at the relevance of union variables in terms of the impact of labor restructuring measures on net prices.

²⁵ A similar procedure is followed for all restructuring policies but these regressions are not included in the paper.

²⁶ Alternative specifications of the instrument list show that companies with large losses and lower capacity utilization were targets for this measure.

²⁷ In 36 of the 45 cases where the CEO was fired, additional management team changes took place. Since changes of CEO and changes of other members of the management team are highly correlated (0.77), Table II shows the specification excluding management team changes other than the CEO. Other specifications are available upon request.

TABLE XI
PRIOR RESTRUCTURING: DOS AND DON'TS

Probit, Tobit, and OLS regressions of the cross-section of SOEs privatized in Mexico between 1983 and 1992. The first regression considers prior restructuring measures as exogenous and estimates directly the OLS regressions. White (1980) corrected standard errors are given in parentheses. For the endogenous process: in the *First Stage*, Probit and Tobits are used to get the policy predictors of the discrete and limited dependent variables. In the *Second Stage*, the dependent variable is "Privatization Q, the value of the Government's Net Privatization Price (GNPP) adjusted by the percentage of shares sold, plus Total Liabilities at the time of privatization, divided by Total Assets of the SOE at the time of privatization. In the second stage instrumental variables are implemented: the policy predictors, obtained from the first stage, are used as *generated instruments*. All variables are as defined in previous tables. A full description can also be found in Appendix C. Standard errors are given in parentheses.

	EXOGENOUS	ENDOGENOUS
	(OLS White Corrected)	(Two-stage Procedure) (Instrumental Variables)
<i>Second Stage</i>		
<i>Dependent Variable: Privatization Q</i>		
<i>Independent variables</i>		
Net Income/Sales	0.7320 ^a (0.2196)	0.8175 ^a (0.2437)
Contingent Labor Liabilities per worker	-0.0075 ^b (0.0032)	-0.0073 ^c (0.0039)
Number of Strikes	-0.0893 ^b (0.0377)	-0.1415 ^b (0.0668)
Government in Industry	0.3614 ^c (0.2156)	0.3469 ^c (0.2022)
Non-control Package dummy	-0.4627 ^a (0.1797)	-0.3842 ^b (0.1800)
Total Length	-0.0005 ^a (0.0001)	-0.0004 ^a (0.0001)
Number of Bidders in Final Round	0.0854 ^a (0.0306)	0.0977 ^a (0.0366)
FDI allowed dummy	0.2343 (0.3372)	0.1588 (0.3345)
Cash-only sale dummy	-0.1509 (0.1269)	-0.1315 (0.1648)
<i>CEO change dummy</i>	0.2768 ^b (0.1392)	0.3129 ^c (0.1758)
<i>Percentage of Labor Cuts</i>	-0.2934 (0.2654)	0.7441 ^c (0.4484)
<i>Union Contract Renegotiation dummy</i>	-0.3365 (0.2606)	0.0832 (0.2876)
<i>Debt Absorbed / Equity</i>	-0.0368 ^a (0.0110)	-0.0015 (0.0473)
<i>Efficiency Measures dummy</i>	-0.1428 (0.1813)	-0.5841 (0.4302)
<i>Investment Measures dummy</i>	0.0090 (0.1718)	-0.4201 (0.4937)
<i>De-investment Measure dummy</i>	-0.0937 (0.1625)	0.0125 (0.1238)
Intercept	0.8247 ^b (0.3888)	0.7887 (0.4623)
Industry Dummies	yes	yes
Number of Observations	132	132
Adjusted R ²	.5258	.4731
F-stat. (overidentification) ^d		0.6276

^a Significant at 1 percent. ^b Significant at 5 percent. ^c Significant at 10 percent.

^d F-statistic (overidentification) is that suggested by Basman [1960].

Labor cuts

In 89 out of 221 companies, there were labor reductions in the two years before privatization. The one-stage OLS panel of Table XI shows a negative insignificant effect of higher percentages of personnel reductions. The censored tobit used in the two-stage procedure (first stage not shown) reveals that larger labor cuts were made in the second phase of the privatization program (1988-1992). SOE workers with temporary contracts were likely targets. Fewer cuts took place in SOEs without unions but interestingly, even fewer workers were fired in SOEs with unions affiliated to "National Union 1," which is thought to be closely associated with the government. Finally, companies whose workers obtained frequent pay increases had a lower probability of labor cuts: the government did not fire the most expensive workers. Table XI shows that reducing the labor force switches from having a negative impact on PQ to becoming marginally valuable in terms of premiums when we account for endogeneity. An extra 5% reduction in workers increases the net price of the SOE close to 6%, evaluated at the predicted mean PQ.

Union Contract Renegotiation

Although the authorities undertook labor cuts prior to the sale in 40% of the SOEs, only in 18 instances did the government actually restructure the union contract. These cases include some of the worst performing companies. The first column of Table XI considers this policy as exogenous and includes a dummy equal to one for those cases where union contract renegotiations took place. The coefficient shows a negative though not significant effect of labor contract restructuring on PQ.

Using a probit as the first step in the two-stage procedure shows that the government restructured union contracts with a higher probability in cases where the frequency of demands for wage increases was greater. Most renegotiations involved firm-level unions that were considered active and enjoying very favorable collective contracts. In the second-stage regression in Table XI the coefficient of labor contract renegotiations changes sign showing in a positive but not statistically significant effect on PQ. This specification contradicts the apparent association of this policy with lower PQs found in the simple means test and in the exogenous regression in the first column of Table XI.

VI.D. Debt Absorption

The results of the OLS regression in Table XI show a statistically significant negative impact of debt absorption on PQ, making debt write-offs the worst prior-restructuring policy to adopt in terms of premia generated. The first-stage tobit for debt absorption shows that SOEs with lower market penetration and in "depressed" industries were likely targets for debt restructuring (not shown). When the estimated value of the amount of debt absorption over total equity is used as a generated instrument in the PQ equation in Table XI, the results show that debt absorption by the government does not have a significant impact on PQ, challenging the benefit of this policy for generating larger premiums.

VI.E. Efficiency measures

In 39 cases, the government undertook specific directives or programs aimed at improving performance and operations efficiency, or at increasing management's flexibility to make financial and production decisions.²⁸ SOEs' management teams argued that efficiency measures would solve the main problems of the firm, improve performance, and generate a higher privatization net price. The results do not support these claims. When comparing groups with and without efficiency programs, the opposite behavior is observed. In the two years prior to privatization: (i) the operating-income-to-sales ratio improved for those SOEs without efficiency measures and dropped for those with a program; and (ii) capacity utilization fell 4.5% for those firms without a program, and fell 7.73% for those with one.

The exogenous PQ regression in Table XI produces a negative though insignificant coefficient for the dummy which measures the use of such programs. The first stage of a probit shows that most of these programs took place in industries with large total debt to assets ratios and in sectors where the government represented a large share of the domestic supply. Companies with obsolete equipment and outdated technology were not targets of these measures. A higher percentage of old bureaucratic managers is positively associated with the probability of undertaking these measures. The second-stage PQ regression in Table XI confirms the exogenous OLS result with a larger negative effect on PQ, but still without statistical significance. These results allow us to conclude that performance enhancement measures by the existing CEO and management team before privatization do not generate higher premia.

VI.F. Investment and De-Investment

The government undertook an investment program in 45 to-be-privatized SOEs.²⁹ Using a dummy equal to one in the case of such a program in the exogenous PQ regression in Table XI to test for the impact of this measure results in a non-significant positive coefficient. The sign is reversed when I account for endogeneity. The first-stage probit finds that SOEs that had been experiencing higher production growth rates or had high capital utilization ratios were less likely candidates for investment measures. SOEs with investment programs typically had small market shares and high debt to asset ratios. Most of these programs were used during the first years of privatization when the restructuring of SOEs still played a large role in the overall government strategy. In the second stage regression in Table XI, using the generated instrument produces a large negative effect on PQ. As in the case of efficiency programs, SOEs with investment programs show no better performance than those without. It can thus be concluded that improvements in efficiency are dubious at best, and that the amount invested

²⁸ It is interesting to observe that in the 23 cases where the government gave more flexibility to the existing management, the CEO was not fired. The CEO was fired in only 3 of the 39 cases with a performance improvement program. This seems to suggest a degree of substitutability of these two actions.

²⁹ Unfortunately, reliable data on capital expenditure from the financial statements was not available for a large part of the sample.

by the government is not reflected in higher PQs, especially when we remember that the resources used would have remained in the government's pocket.

Finally, given the lack of success of investment programs and performance improvement measures, it seems logical to question the effect on prices of the opposite action, de-investment. In 41 SOEs, the government either froze nonessential capital expenditure, stopped major investment programs, or declared that only emergency investments would take place. The test of means in Table X and the exogenous regressions (not shown) indicate the positive results of these measures. This group of SOEs had high market penetration and included several cases where the government had minority holdings. The two-stage procedure in Table XI shows a coefficient close to zero but the standard error is large. De-investing is a better strategy than investing before privatization in order to achieve higher premia, even without taking into account national savings.

VII. CONCLUSION

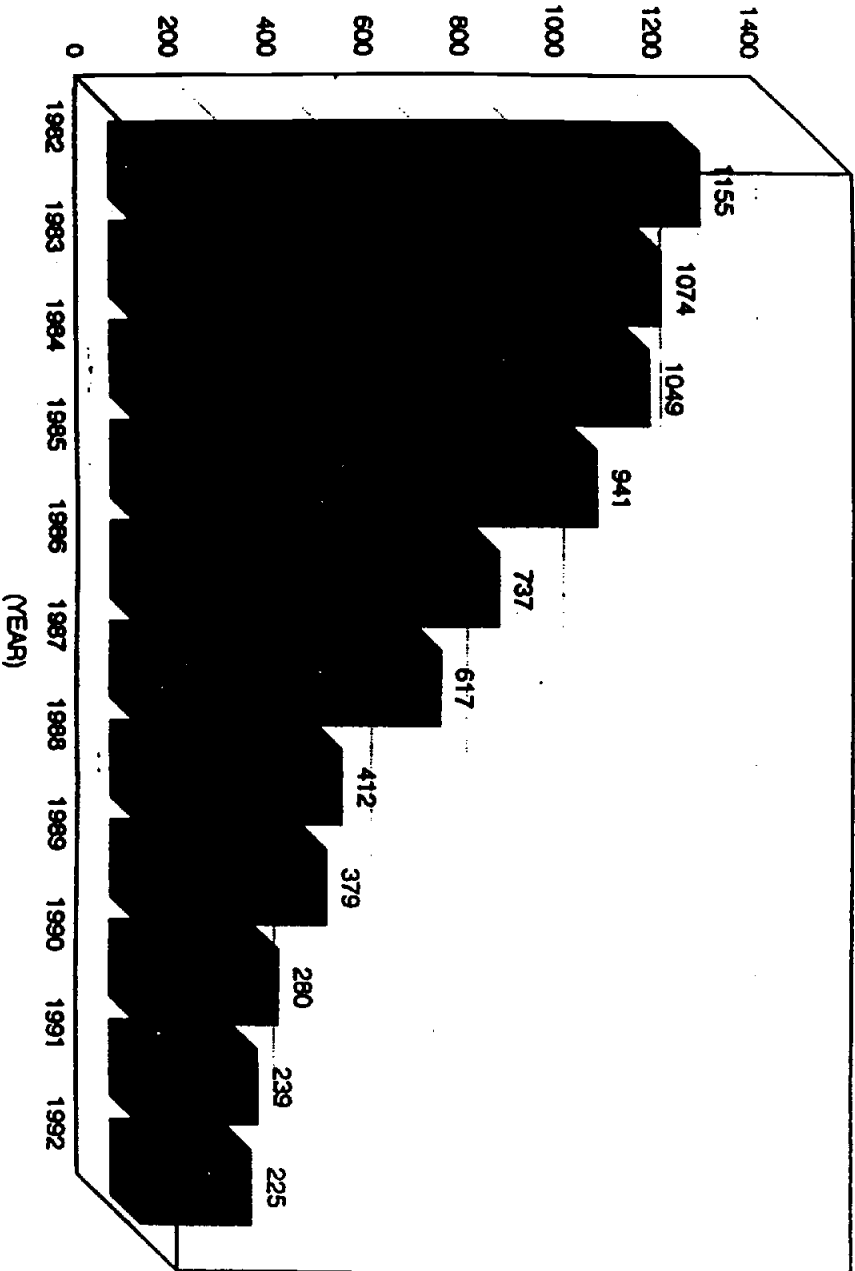
This paper examines the determinants of privatization prices using a company level analysis of a cross-section of all privatized SOEs in Mexico. The importance of company and industry characteristics and of stakeholders is assessed: expensive and active unions and non-control privatization packages reduce net prices (PQs). SOEs' financial and operating performance measures deteriorate as the day of privatization approaches, explaining the negative relation between the time to put the company on the block and net prices. The speed of privatization consistently increases the premiums paid. The positive impact of increased competition in the auction, and the negative effects of specific auction requirements, emphasize the importance of widespread participation and the need to eliminate restrictions that hinder bidder involvement.

These findings open up an area of research on government policies prior to and associated with the sale of state-owned enterprises. This paper shows that direct costs of prior restructuring policies are quite substantial, amounting to an average of 30% of the sale price. Additionally, restructuring measures such as efficiency and investment programs slow privatization. Delays in privatization come at a substantial cost, particularly when subsidies poured on SOEs can quickly add up to outweigh privatization revenues. Finally, the analysis of the impact on net prices of restructuring measures gives us some guidelines on the dos and don'ts in restructuring prior to privatization. Tirole [1991] and Kikeri et al. [1992] suggest extensive government action in restructuring and careful selection of firms and their time of sale. My results do not support this view. Some of the most commonly advocated intervention measures -- including absorbing debt, implementing efficiency programs, and increasing the decision power of the existing management team -- do not lead to higher premia. In contrast, policies that could be regarded as eliminating barriers to the sale, such as firing the CEO and down-sizing the labor force, do increase PQs. The empirical estimates in this paper point to a premium for speed and restructuring measures that expedite privatization and halt the drain of resources. The key lesson is: do not do too much, simply sell.

TOTAL NUMBER OF STATE OWNED ENTERPRISES

(DECEMBER 1982 - JUNE 1992)

(NUMBER OF COMPANIES)



Appendix A

The Mechanism of Privatization in Mexico

The general mechanism of the process followed in each case may be divided into two time frames: *Internal time*, from the date of the first memo within the government mentioning privatization of an SOE until the first public announcement of the sale; and *Public time*, extending from the date of the first public announcement until the date of the announcement of the buyer.

I-Internal time

- 1) Recommendation and proposal of privatization by the ministry or coordinating agency in charge of the company.
- 2) Approval by the "Interministerial Commission of Expenditure and Funding" (CIGF). This commission determines the method: liquidation, merger, transfer, or privatization.
- 3) In the cases of privatization, the Secretariat of Programming and Budget (SPP) sends an official communication to mark the beginning of the process.
- 4) Appointment of one of the 18 Mexican commercial banks or of Nacional Financiera as *sales agent*. The agent bank and the Office of Privatization work together to determine the terms of the auction as well as other required details in order to produce information documents in each case.

II-Public time

- 5) A public announcement calls for an auction, provides the calendar and the general guidelines.
- 6) Potential bidders request information. A descriptive summary of the company is provided.
- 7) A company *prospectus* with detailed information is given to bidders who make a deposit, ranging between 1 and close to 10% of the final sale price as calculated here. A letter of confidentiality is also required.
- 8) Bidders can ask additional questions and are invited to visit the company.
- 9) The agent bank (and possibly other domestic or foreign consultants) prepare a *valuation* which incorporates a financial and technical assessment of the company under different methodologies. The result provides a *minimum reference price (MRP)* which is not disclosed to the bidders. This serves as an internal reference value by which to evaluate the offers.
- 10) Bids are submitted to the agent bank which proceeds to analyze them in terms of price, labor, and investment program proposals. A recommendation to the Finance Secretariat is made.
- 11) Approval of privatization is provided by the Office of Privatization. In a case where all bids are below the MRP or there is only 1 bid, the case is forwarded to the CIGF for a decision.
- 12) In a case of rejection, the company will be auctioned again and the necessary steps under Public time will be followed. On average, after several unsuccessful auction rounds, direct negotiations with bidders are undertaken.
- 13) The Finance Secretariat issues a final resolution and a *Privatization Contract* or sale contract is signed. Payment is typically directed to the Federal Treasury, or in a few cases to Nacional Financiera when this institution was the holder of the shares.

Appendix B

Summary Statistics of Variables

Summary statistics for the sample of 221 Privatization Contracts of companies privatized in Mexico between 1983 and June 1992.

Variable	Obs.	Mean	Median	Std. Dev.	Minimum	Maximum
Privatization Q	202	0.5378	0.6172	0.7975	-3.4600	4.0563
Net Income / Sales (percent)	191	-0.1292	-0.0099	0.3909	-2.9306	0.7332
Operating Income / Sale (percent)	191	-0.0596	-0.0247	0.3628	-1.7850	0.7534
Contingent Labor Liabilities per Worker (millions of pesos per worker)	199	16.3365	15.0347	14.4260	0	130.4428
Number of Strikes	185	0.9838	0	1.4835	0	11
Government in Industry (percent)	221	0.4626	0.5	0.3545	0.01	1
Growth in Production (percent)	195	-0.0165	-0.0153	0.3183	-1	1.1029
Capacity Utilization (percent)	205	0.5243	0.51	0.2735	0	1.125
Company Market Share (percent)	220	0.1520	0.05	0.2336	0	1
Number of Bidders	220	2.9318	3	1.9397	1	11
Number of Bidders Final Round	220	2.5773	2	1.7849	1	11
Total Debt over Total Assets	203	0.4587	0.3420	0.3651	0	2.2740
Number of Employees	210	1721.919	472	5253.337	0	49203
Internal Time (days)	184	422.2717	268	385.7993	11	1992
Public Time (days)	188	302.8245	211	253.6222	12	1128
Total Time (days)	215	719.5767	606	441.7985	49	2288
Number of Auction Rounds	221	1.6290	1	1.0987	1	7

Appendix C

Definition of Variables

Agent bank dummies: A set of 9 dummy variables one for each of the financial institutions in charge of the privatization process of a company. Each dummy is equal to 1 if that particular agent was responsible for that company, and 0 otherwise.

Announced minimum bid floor: Dummy variable equal to 1 if the government announced a minimum bid floor as part of the auction rules, and 0 otherwise.

Backward technology: Dummy variable equal to 1 if the valuator or any document described the technology of the company as outdated or backward, and 0 otherwise.

Buyers must meet all company contracts: Dummy variable equal to 1 if the government required as part of the auction rules that the buyers meet all company contracts made prior to privatization, and 0 otherwise.

Bureaucrat manager: Dummy variable equal to 1 if the manager (or CEO) before privatization was a bureaucrat with less than three years on the job, and 0 otherwise.

Cash/Installments schedule provided: Dummy variable equal to 1 if the government announced as part of the auction rules a determined cash/installment payment schedule.

Capacity utilization: The last two-year average of capacity utilization before privatization.

CEO change: Dummy variable equal to 1 if the CEO was fired in the two years prior to privatization, and 0 otherwise.

Distribution of products contract: Dummy variable equal to 1 if the company had a commercialization contract with a third party, and 0 otherwise.

Company market share: The average market share of the SOE during the three-year period before privatization.

Contingent labor liabilities per worker: The average cost of firing a worker the day after privatization, according to the collective union contract.

Debt/Equity swap: Dummy variable equal to 1 if the government announced before the auction that it would allow the use of a debt for equity swap mechanism, and 0 otherwise.

Debt Absorbed / Equity: Debt absorption undertaken by the government before privatization, divided by total shareholders' equity at the time of privatization.

De-investment measures: Dummy variable equal to 1 if the company underwent a de-investment measure (as outlined in the text) within the two years prior to privatization, and 0 otherwise.

Depressed market: Dummy variable equal to 1 if the valuator or any document described as depressed the market of the company, and 0 otherwise.

Efficiency measures: Dummy variable equal to 1 if the company underwent an efficiency improvement program in the two years prior to privatization, and 0 otherwise.

Excess workers: Dummy variable equal to 1 if the valuator or any document described the company as having excess labor relative to industry standards, and 0 otherwise.

Experienced bureaucrat manager: Dummy variable equal to 1 if the manager (or CEO) before privatization was an experienced bureaucrat with over three years on the job, and 0 otherwise.

Firm-level union: Dummy variable equal to 1 if the union comprises workers only from that SOE, and 0 otherwise.

Foreign investment not allowed: Dummy variable equal to 1 if the Law of Foreign Direct Investment did not allow FDI in that industry, and 0 otherwise.

Foreign manager: Dummy variable equal to 1 if the manager (or CEO) before privatization was a foreigner, and 0 otherwise.

GNPP: Government's Net Privatization Price. The net present value of the nominal price of sale as registered in the sale contract subtracting all restructuring costs, the cost of government commitments at the time of sale, and all other adjustments made to the sale contract.

Government as a partner: Dummy variable equal to 1 if the government remained as a shareholder in the company after privatization, and 0 otherwise.

Government in industry: The government's percentage participation in domestic production.

Growth in production: The four-year geometric average of production growth before privatization.

Growth in sales rate: The four-year geometric average of sales growth before privatization.

Individual contract: Dummy variable equal to 1 if the company did not have a collective union contract so that each employee signed an individual employment contract, and 0 otherwise.

Investment measures: Dummy variable equal to 1 if the company had an investment program within the two years prior to privatization, and 0 otherwise.

Investment plan at the time of bid: Dummy variable equal to 1 if the government required as part of the auction that bidders submit an investment plan at the time of the bid, and 0 otherwise.

Industry order: The number of companies privatized before the company in the same 3 digit s.i.c. industry code.

Industry-level union: Dummy variable equal to 1 if the workers of the company belonged to a union for the whole industry, and 0 otherwise.

Internal length: The number of days between the first recommendation for privatization and the first public announcement of privatization.

Labor contract renegotiation: Dummy variable equal to 1 if the labor contract was renegotiated in the two years prior to privatization, and 0 otherwise.

Large fringe benefits: Dummy variable equal to 1 if the collective union contract gave large fringe benefits to workers relative to industry standards, and 0 otherwise.

Manager from labor union: Dummy variable equal to 1 if the manager (or CEO) before privatization was connected or belonged to the union of the company, and 0 otherwise.

Ministry in charge: A set of 6 dummy variables, one for each of the ministries under which the company was classified before privatization. Each dummy is equal to 1 if that ministry was responsible for that company, and 0 otherwise.

National union "x": Dummy variable equal to 1 if the workers of the company belonged to national union x not specific to an industry, and 0 otherwise.

Net Income / Sales: The four-year average of Net Income over Total Sales before privatization.

No union affiliation: Dummy variable equal to 1 if the workers of the company had no union affiliation, and 0 otherwise.

Non-control package: Dummy variable equal to 1 if the percentage sold does not give control to the buyer, and 0 otherwise.

Non-tradeable good: Dummy variable equal to 1 if the main product of the company is a non-tradeable good, and 0 otherwise.

Number of auction rounds: The number of privatization sale rounds.

Number of final round bidders: The number of different bidders in the final auction round.

Number of bidders: The number of different bidders in all auction rounds.

Number of strikes: The number of strikes experienced by the SOE in the five years before privatization.

Obsolete equipment: Dummy variable equal to 1 if the valuator or any document described the machinery of the company as obsolete, and 0 otherwise.

Operating Income / Sales: The four-year average of Operating Income over Total Sales before privatization.

Order of sale: The number of companies privatized before the company in the whole process.

Ownership/Bidder Restrictions: Dummy variable equal to 1 if there were auction requirements which restricted ownership for a minimum number of years or did not allow certain type of bidders to participate.

Percentage of labor cuts: Percentage of the labor force fired in the two years prior to privatization.

Percentage of management team fired: Percentage of the management team fired (besides the CEO) in the two years prior to privatization.

Percentage sold: The percentage of shares sold in privatization.

Private manager: Dummy variable equal to 1 if the manager (or CEO) before privatization was a private sector manager, and 0 otherwise.

Privatization Q: Government's Net Privatization Price adjusted by the percentage of company shares sold plus total liabilities at the time of privatization, divided by the total assets of the company at the time of privatization.

Price controls: Dummy variable equal to 1 if the main product of the company was subject of price controls, and 0 otherwise.

Preference to insiders: Dummy variable equal to 1 if insiders were given special preferences in the auction process as part of the company's bylaws.

Product requiring concession: Dummy variable equal to 1 if the product of the company required government concession, and 0 otherwise.

Public length: The number of days between the first public announcement of privatization and the privatization date.

Required Deposit / Assets: The required deposit to be allowed to enter the auction as a percentage of total assets of the company at the time of privatization.

Restricted ownership period: Dummy variable equal to 1 if the government, required as part of the auction rules that the buyers should have exclusive ownership for a minimum number of years (usually 3 to 5) without allowing resale, and 0 otherwise.

Sale contract models given to bidders: Dummy variable equal to 1 if the government gave the bidders sale contract models before the bid date, and 0 otherwise.

Sale Costs / Inventories: Sales Costs over total inventories at the time of privatization.

Shareholder manager: Dummy variable equal to 1 if the manager (or CEO) before privatization was a shareholder, and 0 otherwise.

Shutdown: Dummy variable equal to 1 if the government shut down the company before privatization, and 0 otherwise.

Supplier SOE: Dummy variable equal to 1 if before privatization, the company acted mainly as a supplier for other SOEs, and 0 otherwise.

Technology contract with third party: Dummy variable equal to 1 if the company had a technology contract with a third party, and 0 otherwise.

Temporary labor contracts: Dummy variable equal to 1 if the company had only temporary contracts signed with its workers, and 0 otherwise.

Total length: The total number of days between the first recommendation to privatize and the privatization date.

Union / Non-union workers: Number of unionized workers over number of non-unionized workers in the company at the time of privatization.

Wage increases requests: Number of wage increases requested by workers of the SOE during the four years prior to privatization.

Appendix D

ENDOGENOUS LENGTH

OLS regressions of the cross-section of SOEs privatized in Mexico between 1983 and 1992. In the *First Stage*, OLS is used to get the predictor of the length dependent variable "Internal Length" which is the number of days between the first recommendation for privatization and the first public announcement of privatization of an SOE. The exact description of the independent variables can be found in Appendix C. In the *Second Stage*, the dependent variable is "Privatization Q", the value of the Government's bid for Privatization Price (GNPP) adjusted by the percentage of shares sold, plus Total Liabilities at the time of privatization, divided by Total Assets of the company at the time of privatization. In the second stage, instrumental variables are implemented, the "Internal length predictor", obtained from the first stage, is used as a generated instrument. All other variables are as defined in previous tables. Standard errors are given in parentheses.

Independent variables	Second Stage		First Stage	
	Privatization Q		O.L.S.	
	From (1)	From (2)	Internal Length (1)	Internal Length (2)
Net Income/Sales	0.7553* (0.2076)	0.7339* (0.2089)	196.23 (311.65)	34.994 (321.03)
Contingent Labor Liabilities per worker	-0.1950* (0.0053)	-0.0194* (0.0056)	-197.98 (314.59)	-25.111 (316.48)
Number of Strikes	-0.1344* (0.0443)	-0.1351* (0.0445)	56.719 (354.45)	390.96 (373.48)
Government in Industry	0.4286* (0.2236)	0.4293* (0.2263)	135.46 (68.249)*	278.05 (140.91)*
Non-control Package dummy	-0.3654* (0.2291)	-0.3671* (0.2098)	-361.34 (396.61)	-193.59 (395.68)
1988-1992 dummy	0.2025 (0.1936)	0.1999 (0.1845)	530.65 (301.76)	906.24 (410.41)*
Internal Length	-0.0006* (0.0003)	-0.0006* (0.0002)	-521.81 (252.71)*	-363.07 (352.75)
Number of Bidders in Final Round	0.0899* (0.0323)	0.0895* (0.0323)	469.83 (321.59)	283.20 (112.99)*
FDI not allowed dummy	-0.1400 (0.4064)	-0.1370 (0.4107)	363.70 (330.40)	562.67 (334.50)*
Investment plan in 6 months dummy	0.3631* (0.2001)	0.3693 (0.3429)	-330.58 (318.51)	-167.46 (321.84)
Cash-only sale dummy	-0.1451 (0.1273)	-0.1450 (0.1283)	-961.11 (523.14)*	-512.15 (530.37)
			-735.66 (357.70)*	-769.34 (362.27)*
			-60.051 (103.36)	-87.920 (106.87)
			125.95 (220.56)	355.48 (254.79)*
			57.379 (422.46)	-137.24 (429.73)
			-232.50 (262.45)	-232.12 (161.03)*
			617.23 (249.73)*	608.12 (248.53)*
			-245.10 (184.05)	-244.70 (185.25)
			-0.1690 (6.4389)	37.091 (94.751)
				-1.0079 (6.4280)
				138.79 (173.15)
				146.96 (36.958)*
				-155.25 (79.845)*
				189.75 (179.58)
				-133.47 (127.88)
				77.074 (108.23)
				-92.504 (115.26)
				-450.39 (332.19)
Intercept	0.0439* (0.3811)	1.1768* (0.6130)	-125.88 (79.145)	146.96 (36.958)*
Industry Dummies	yes	yes	167.46 (181.69)	189.75 (179.58)
Number of Observations	146	146	-133.13 (116.37)	-133.47 (127.88)
Adjusted R ²	.4126	.4053	704.83 (316.07)*	-92.504 (115.26)
			.2716	-450.39 (332.19)
			3.76	.2991
			(0.0000)	3.83
			171	(0.0000)
				170

* Significant at 1 percent. † Significant at 5 percent. ‡ Significant at 10 percent.

Appendix E

MANAGEMENT CHANGES

Probit and OLS regressions of the cross-section of SOEs privatized in Mexico between 1983 and 1992. In the *First Stage*, a Probit is used to get the policy predictor of the discrete dependent variable "CEO change", a dummy which equals 1 if the CEO was fired in the two years prior to privatization and 0 otherwise. The exact description of the dependent variable can be found in Appendix C. In the *Second Stage*, the dependent variable is "Privatization Q", the value of the Government's Net Privatization Price (GNPP) adjusted by the percentage of shares sold, plus Total Liabilities at the time of privatization, divided by Total Assets of the company at the time of privatization. In the second stage, independent variables are implemented, the "CEO predictor" obtained from the first stage, is used as a *generated instrument*. All other variables are as defined in previous tables, *except where given in parentheses*.

Independent variables	Second Stage		First Stage	
	Privatization Q	From (t)	Independent variables	Probit CEO type dummy (t)
Net Income/Sales	0.7266* (0.1901)		Agent Bank 1	-1.3593 (0.5939)*
Contingent Labor Liabilities per worker	-0.0182* (0.0060)		Agent Bank 2	-1.5441 (1.3199)
Number of Strikes	-0.0830* (0.0407)		Agent Bank 3	1.6473 (0.6225)*
Government in Industry	0.4225* (0.2009)		Agent Bank 5	-0.4639 (1.4093)
Non-control Package dummy	-0.3123* (0.1868)		Agent Bank 6	-3.3997 (1.8408)*
Total Length	-0.0004* (0.0001)		Agent Bank 9	0.4792 (1.4093)
Number of Bidders in Final Round	0.1106* (0.0290)		Agent Bank 10	-2.8585 (1.4137)*
FDI not allowed dummy	-0.3932 (0.4989)		Agent Bank 11	1.6894 (1.4635)
Investment plan in 6 months dummy	0.4251* (0.1913)		Agent Bank 12	-0.8271 (1.3556)
Cash-only sale dummy	-0.1750 (0.1160)		Ministry 1
CEO change dummy	0.2468* (0.1328)		Ministry 2	0.5136 (0.8865)
Intercept	0.6125* (0.3395)		Ministry 3	-0.7162 (1.1350)
Industry Dummies	yes		Ministry 4	0.8689 (1.4466)*
Number of Observations	132		Ministry 6	-0.1564 (0.7894)
Adjusted R ²	.4693		Ministry 8	0.8558 (1.0348)
			Assets / Mean Assets of sample	0.0597 (0.0335)*
			Company Market Share	0.6920 (0.7235)
			1988-1992 dummy	0.5424 (0.5344)
			Technology contract w/ third dummy	-0.6229 (0.3781)*
			Subsidiary SOE dummy	0.0531 (0.6593)
			Supplier SOE dummy	-0.6190 (1.3071)
			CEO experienced bureaucrat	-1.3215 (0.4955)*
			CEO private manager	-2.9176 (0.8814)*
			Intercept	1.4288 (1.8149)
			Adjusted R ²	.2977
			F-statistic on Excluded Instruments	2.08
			(Prob > F)	(0.0020)
			Number of Observations	138

* Significant at 1 percent. ** Significant at 5 percent. *** Significant at 10 percent.

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